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[Title of Invention]	APPARATUS AND METHOD FOR COLLECTING COMSUMPTION ARTICLES, INFORMATION PROCESSING APPARATUS AND METHOD, AND PROGRAM AND RECORDING MEDIUM USED THEREFOR
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[TITLE OF INVENTION] APPARATUS AND METHOD FOR COLLECTING COMSUMPTION ARTICLES, INFORMATION PROCESSING APPARATUS AND METHOD, AND PROGRAM AND RECORDING MEDIUM USED THEREFOR

[WHAT IS CLAIMED IS]

[Claim 1] A collecting apparatus characterized by having:

reception means for receiving a request for collecting consumption articles from a client;

recording means for storing collecting data, which concerns the consumption articles requested for collecting, in a memory with the data associated with the client; and

issuing means for issuing a collecting code for accessing the collecting data stored in the memory.

[Claim 2] The collecting apparatus according to claim 1, further having generation means for generating a collecting slip, with the collecting code recorded, to be dispatched to the client.

[Claim 3] The collecting apparatus according to claim 2, wherein the collecting slip is attached to a collecting container.

[Claim 4] The collecting apparatus according to claim 3, wherein the collecting container accommodates a predetermined quantity of the consumption articles to be collected.

[Claim 5] The collecting apparatus according to claim 4, wherein the collecting slip is collected together with the collecting container which accommodates the consumption articles.

[Claim 6] The collecting apparatus according to claim 5, further having:

reading means for reading out the collecting code recorded on the collecting slip attached to the collecting container collected;

comparing means for comparing a kind and quantity of the consumption articles shown by the collecting data corresponding to the collecting code read out with the kind and quantity of the consumption articles collected; and

correction means for correcting the collecting data when result of the comparison does not show coincidence.

[Claim 7] The collecting apparatus according to claim 1, further comprising transfer means for transmitting the collecting code to the client.

[Claim 8] The collecting apparatus according to claim 7, wherein transmitting of the collecting code is carried out via the Internet.

[Claim 9] The collecting apparatus according to claim 7, wherein the collecting code is transmitted to the client so that the client generates the collecting slip.

[Claim 10] The collecting apparatus according to claim

9, wherein the collecting slip is attached to the consumption articles to be collected.

[Claim 11] The collecting apparatus according to claim 10, further having:

reading means for reading out the collecting code recorded on the collecting slip attached to the consumption articles collected;

comparing means for comparing a kind and quantity of the consumption articles shown by the collecting data corresponding to the collecting code read out with the kind and quantity of the consumption articles collected; and

correction means for correcting the collecting data when result of the comparison does not show coincidence.

[Claim 12] The collecting apparatus according to claim 11, further having recording means for calculating a collecting rate of the consumption articles for respective users and/or kinds of the consumption articles, and recording the calculation result in the memory after completion of a process by the comparing means or correction means.

[Claim 13] The collecting apparatus according to claim 12, further having determination means for determining incentive to be provided to the client for respective clients and/or kinds of the consumption articles in compliance with the collecting rate of the consumption

articles.

[Claim 14] The collecting apparatus according to claim 13, wherein the incentive is determined based on an incentive setting table stored in the memory.

[Claim 15] The collecting apparatus according to claim 13, further having indication means for presenting information of the collecting rate calculated and/or incentive determined to the client.

[Claim 16] The collecting apparatus according to claim 12, further having analyzing means for analyzing a collecting trend for respective kinds of the consumption articles based on the collecting rate recorded.

[Claim 17] The collecting apparatus according to claim 1, wherein the request for collecting the consumption articles is carried out via the Internet.

[Claim 18] A collecting method characterized by:

receiving a request for collecting consumption articles from a client;

storing collecting data, which concerns the consumption articles requested for collecting, in a memory with the data associated with the client; and

issuing a collecting code for accessing the collecting data stored in the memory.

[Claim 19] The collecting method according to claim 18, further characterized by generating a collecting slip, with the collecting code recorded therein, to be

dispatched to the client.

[Claim 20] The collecting method according to claim 19, wherein the collecting slip is attached to a collecting container.

[Claim 21] The collecting method according to claim 20, wherein the collecting container accommodates a predetermined quantity of the consumption articles to be collected.

[Claim 22] The collecting method according to claim 21, wherein the collecting slip is collected together with the collecting container which accommodates the consumption articles.

[Claim 23] The collecting method according to claim 22, further characterized by:

reading out a collecting code recorded on the collecting slip attached to the collecting container collected;

comparing a kind and quantity of the consumption articles shown by the collecting data corresponding to the collecting code read out with the kind and quantity of the consumption articles collected; and

correcting the collecting data when result of the comparison does not show coincidence.

[Claim 24] The collecting method according to claim 18, further characterized by transmitting the collecting code to the client.

[Claim 25] The collecting method according to claim 24,

wherein transmitting of the collecting code is carried out via the Internet.

[Claim 26] The collecting method according to claim 24, wherein the collecting code is transmitted to the client so that the client generates the collecting slip.

[Claim 27] The collecting method according to claim 26, wherein the collecting slip is attached to the consumption articles to be collected.

[Claim 28] The collecting method according to claim 27, further characterized by:

reading out the collecting code recorded on the collecting slip attached to the collecting container collected;

comparing the kind and quantity of the consumption articles shown by the collecting data corresponding to the collecting code read out with the kind and quantity of the consumption articles collected; and

correcting the collecting data when result of the comparison does not show coincidence.

[Claim 29] The collecting method according to claim 28, further characterized by calculating a collecting rate of the consumption articles for respective clients and/or kinds of the consumption articles to be recorded in the memory after completion of the comparing or correcting.

[Claim 30] The collecting method according to claim 29, further characterized by determining incentive to be

provided to the client for respective clients and/or kinds of the consumption articles in compliance with the collecting rate of the consumption articles.

[Claim 31] The collecting method according to claim 30, wherein the incentive is determined based on an incentive setting table stored in the memory.

[Claim 32] The collecting method according to claim 30, further characterized by presenting information of the collecting rate calculated and/or the incentive determined to the client.

[Claim 33] The collecting method according to claim 29, further characterized by analyzing a collecting trend for respective kinds of the consumption articles based on the collecting rate recorded.

[Claim 34] The collecting method according to claim 18, wherein a request for collecting the consumption articles is carried out via the Internet.

[Claim 35] A collecting apparatus characterized by having:

recording means for storing collecting data concerning consumption articles, which is inputted and transmitted via the Internet by a client in an input screen provided by the collecting apparatus, in a memory;

issuing means for issuing a collecting code for accessing the collecting data stored in the memory; and

displaying means for displaying the collecting

data which is accessed with the collecting code collected together with the consumption articles in order to confirm that the consumption articles collected from the client coincide with the collecting data stored in the memory.

[Claim 36] The collecting apparatus according to claim 35, further having providing means for providing incentive based on the collecting data stored in the memory and result of the confirmation.

[Claim 37] The collecting apparatus according to claim 36, wherein the collecting data is stored in the memory with associated with the client.

[Claim 38] The collecting apparatus according to claim 37, wherein the collecting data is associated with information on a name and/or place of the client.

[Claim 39] The collecting apparatus according to claim 35, further having calculation means for calculating a collecting rate based on the collecting data stored in the memory.

[Claim 40] The collecting apparatus according to claim 35, further having analyzing means for analyzing a collecting trend based on the collecting data stored in the memory.

[Claim 41] The collecting apparatus according to claim 35, further having recognition means for recognizing a collecting manner of the consumption articles selected by the client, wherein the collecting manner includes

at least individual collecting and lump-sum collecting.

[Claim 42] The collecting apparatus according to claim 41, wherein the lump-sum collecting is automatically selected based on the collecting data stored in association with the client.

[Claim 43] The collecting apparatus according to claim 36, wherein the providing means provides information on the indication for confirming the incentive to the client via the Internet.

[Claim 44] The collecting apparatus according to claim 39, wherein the providing means for providing information on the indication for confirming the collecting rate to the client via the Internet.

[Claim 45] The collecting apparatus according to claim 35, wherein the collecting data includes the kind and/or quantity of the consumption articles, and the providing of the incentive differs depending upon the respective kinds and/or quantities of the consumption articles.

[Claim 46] The collecting apparatus according to claim 36, wherein the providing of the incentive is carried out for the respective clients.

[Claim 47] The collecting apparatus according to claim 36, wherein the providing of the incentive differs depending upon terms.

[Claim 48] The collecting apparatus according to claim 36, wherein the providing of the incentive differs

depending upon areas where the clients are located.

[Claim 49] The collecting apparatus according to claim 36, wherein the incentive is a discount rate of prices of the consumption articles which the client desires to purchase.

[Claim 50] The collecting apparatus according to claim 36, wherein the incentive includes providing additional points to the client, permitting discount of prices of the consumption articles which the client desires to purchase or presentation of the consumption articles desired by the client with respect to accumulation of a predetermined number of the points.

[Claim 51] The collecting apparatus according to claim 35, wherein the collecting code collected together with the consumption articles is attached to or recorded on the consumption articles, or attached to or recorded on the collecting container which accommodates the consumption articles.

[Claim 52] The collecting apparatus according to claim 36, wherein the consumption articles include business supplies.

[Claim 53] The collecting apparatus according to claim 52, wherein the business supplies include cartridges and ink containers.

[Claim 54] The collecting apparatus according to claim 35, wherein the client includes a user and collecting agent.

[Claim 55] The collecting apparatus according to claim 35, further having transfer means for transmitting the collecting code for accessing the collecting data stored in the memory.

[Claim 56] A collecting apparatus characterized by having:

recording means for storing collecting data concerning the consumption articles, which is inputted and transmitted via the Internet by a client in an input screen provided by the collecting apparatus, in a memory;

transfer means for transmitting the collecting code for accessing the collecting data stored in the memory; and

displaying means for displaying the collecting data which is accessed with the collecting code collected together with the consumption articles in order to confirm that the consumption articles collected from the client coincide with the collecting data stored in the memory.

[Claim 57] The collecting apparatus according to claim 56, further having providing means for providing incentive based on the collecting data stored in the memory and result of the confirmation.

[Claim 58] The collecting apparatus according to claim 56, wherein the collecting code is transmitted by the transfer means so that the client generates the

collecting slip.

[Claim 59] The collecting apparatus according to claim 56, further having control means for recognizing selection of transmitting the collecting code by the client so that the transfer means transmits the collecting code to the client when the selection of transmitting is recognized.

[Claim 60] A collecting apparatus characterized by having:

issuing means for issuing a collecting code associated with the collecting data concerning consumption articles requested for collecting; and

providing means for providing incentive based on the collecting code which is collected together with the consumption articles collected from a client.

[Claim 61] A collecting method characterized by:

storing collecting data concerning consumption articles, which is inputted and transmitted via the Internet by a client in an input screen provided by a collecting apparatus, in a memory;

issuing a collecting code for accessing the collecting data stored in the memory; and

displaying the collecting data which is accessed with the collecting code collected together with the consumption articles in order to confirm that the consumption articles collected from the client coincide with the collecting data stored in the memory.

[Claim 62] The collecting method according to claim 61, further characterized by providing incentive based on the collecting data stored in the memory and result of the confirmation.

[Claim 63] The collecting method according to claim 61, wherein the collecting data is stored in the memory with associated with the client.

[Claim 64] The collecting method according to claim 63, wherein the collecting data is associated with information on a name and/or place of the client.

[claim 65] The collecting method according to claim 61, further characterized by calculating a collecting rate based on the collecting data stored in the memory.

[Claim 66] The collecting method according to claim 61, further characterized by analyzing a collecting trend based on the collecting data stored in the memory.

[Claim 67] The collecting method according to claim 61, further characterized by recognizing a collecting manner of the consumption articles selected by the client, wherein the collecting manner includes at least individual collecting and lump-sum collecting.

[Claim 68] The collecting method according to claim 67, wherein the lump-sum collecting is automatically selected based on the collecting data stored in association with the client.

[Claim 69] The collecting method according to claim 62, wherein the information on the indication for

confirming the incentive is provided to the client via the Internet.

[Claim 70] The collecting method according to claim 62, wherein the information on the indication for confirming the collecting rate is provided to the client via the Internet.

[Claim 71] The collecting method according to claim 61, wherein the collecting data includes the kinds of the consumption articles.

[Claim 72] The collecting method according to claim 61, wherein the collecting data includes the quantities of the consumption articles.

[Claim 73] The collecting method according to claim 62, wherein the providing of the incentive is carried out for the respective clients.

[Claim 74] The collecting method according to claim 62, wherein the providing of the incentive differs depending upon the kinds of the consumption articles.

[Claim 75] The collecting method according to claim 62, wherein the providing of the incentive differs depending upon the quantities of the consumption articles.

[Claim 76] The collecting method according to claim 62, wherein the providing of the incentive differs depending upon terms.

[Claim 77] The collecting method according to claim 62, wherein the providing of the incentive differs

depending upon areas where the clients are located.

[Claim 78] The collecting method according to claim 62, wherein the incentive is a discount rate of prices of the consumption articles which the client desires to purchase.

[Claim 79] The collecting method according to claim 62, wherein the incentive includes providing additional points to the client, permitting discount of prices of the consumption articles which the client desires to purchase, or presentation of the consumption articles desired by the client with respect to accumulation of a predetermined number of the points.

[Claim 80] The collecting method according to claim 61, wherein the collecting code collected together with the consumption articles is attached to or recorded on the consumption articles, or attached to or recorded on the collecting container which accommodates the consumption articles.

[Claim 81] The collecting method according to claim 61, wherein the consumption articles include business supplies.

[Claim 82] The collecting method according to claim 81, wherein the business supplies include cartridges and ink containers.

[Claim 83] The collecting method according to claim 61, wherein the client includes a user and collecting agent.

[Claim 84] The collecting method according to claim 61,

further characterized by transmitting the collecting code for accessing the collecting data stored in the memory.

[Claim 85] A collecting method characterized by:

storing collecting data concerning consumption articles, which is inputted and transmitted via the Internet by a client in an input screen provided by a collecting apparatus, in a memory;

transmitting the collecting code for accessing the collecting data stored in the memory; and

displaying the collecting data which is accessed with the collecting code collected together with the consumption articles in order to confirm that the consumption articles collected from the client coincide with the collecting data stored in the memory.

[Claim 86] The collecting method according to claim 85, further characterized by providing incentive based on the collecting data stored in the memory and result of the confirmation.

[Claim 87] The collecting method according to claim 85, wherein the collecting code is transmitted so that the client generates the collecting slip.

[Claim 88] The collecting method according to claim 85, further characterized by recognizing selection of transmitting the collecting code by the client to transmit the collecting code to the client when the selection of transmitting is recognized.

[Claim 89] A collecting method characterized by:

issuing a collecting code associated with collecting data concerning consumption articles requested for collecting; and

providing incentive based on the collecting code which is collected together with the consumption articles collected from a client.

[Claim 90] A program which controls a computer to realize the method of collecting consumption articles according to claim 18, 61 85 or 89.

[Claim 91] A recording medium which is recorded the program according to claim 90.

[Claim 92] A collecting apparatus characterized by having:

updating means for updating client's collecting data of consumption articles which is accumulated in a memory for respective clients;

calculation means for calculating information on incentive in compliance with the collecting data updated by the updating means; and

providing means for providing information of order screen by which the client orders the consumption articles,

wherein the information of order screen includes the information of the incentive.

[Claim 93] A collecting apparatus characterized by having:

reading means for reading a collecting code which is sent together with consumption articles and includes at least information on kinds of the consumption articles;

management means for managing a collecting condition of the consumption articles in compliance with the collecting code read by the reading means; and

providing means for providing information for indicating the collecting condition managed by the management means to a computer externally connected via the Internet.

[Claim 94] A collecting apparatus characterized by having:

providing means for providing information of screen, for which collection of consumption articles is required and at least information indicating a kind of the consumption articles is inputted, to a computer communicably connected; and

information means for informing the computer of a collecting code including the information which is inputted via a screen based on the information of screen and indicates the kind of the consumption articles.

[Claim 95] The collecting apparatus according to claim 94, further having recognition means for recognizing client ID transmitted from a computer communicably connected,

wherein the collecting code includes information for recognizing the client.

[Claim 96] The collecting apparatus according to claim 95, wherein the collecting code is to be printed, and a medium on which the collecting code is printed is delivered to a collecting center together with a collecting box for delivering the consumption articles, and

the management means manages the collecting condition for the client based on information corresponding to the collecting code read by the reading means.

[Claim 97] An information processing apparatus for receiving a request to collect consumption articles characterized by having:

reception means for receiving information of requesting collection transmitted from a computer connected via the Internet, wherein the information of requesting collection includes information indicating at least kinds and quantities of the consumption articles;

generating means for generating a collecting code including the information indication at least of the kinds and quantities of the consumption articles based on the information of requesting collection received by the reception means; and

transfer means for transmitting the collecting

code generated by the generation means to the computer.

[Claim 98] A collecting method characterized by having the steps of:

updating client's collecting data of consumption articles which is accumulated in a memory for respective clients;

calculating information on incentive in compliance with the collecting data updated; and

providing information of order screen by which the client orders the consumption articles,

wherein the information of order screen includes the information of incentive.

[Claim 99] A collecting method characterized by:

reading a collecting code which is sent together with consumption articles and includes information indicating at least kinds of the consumption articles;

managing a collecting condition of the consumption articles in compliance with the read collecting code; and

providing information for displaying the collecting condition managed to a computer externally connected via the Internet.

[Claim 100] A collecting method characterized by:

providing information of screen, for which collection of consumption articles is required and information indicating at least kinds of the consumption articles is inputted, to a computer

communicably connected; and

informing a collecting code including the information which is inputted via a screen based on the information of screen and indicates the kinds of the consumption articles.

[Claim 101] An information processing method of receiving a request to collect consumption articles, characterized by:

receiving information of requesting collection transmitted from the computer connected via the Internet, wherein the information of requesting collection includes information indicating at least kinds and quantities of the consumption articles;

generating a collecting code including information indicating at least of the kinds and quantities of the consumption articles based on the information of requesting collection received; and

transmitting the collecting code generated to the computer.

[Claim 102] A program which controls a computer to realize the method of collecting consumption articles or processing information according to one of claims 98 to 101.

[Claim 103] A recording medium which is recorded the program according to claim 102.

[DETAILED DESCRIPTION OF INVENTION]

[0001]

[TECHNICAL FIELD OF INVENTION]

The present invention relates to an apparatus and a method for collecting consumption articles, an information processing apparatus and method, and a program and a recording medium used therefor, and for example to collection of the consumption articles such as cartridges.

[0002]

[PRIOR ART]

Some types of electrophotographic printers or facsimiles are fitted with cartridges containing toner which are replaced in whole when the toner is run out. Such types have advantages that the toner is easily added and that consumable components incorporated in the cartridge such as a photosensitive drum, developing device, cleaning member and the like are replaced at the same time as the replacement of the cartridge, which facilitates maintenance of equipment. Providing the cartridge with part of components of the equipment can also reduce a production cost of the equipment.

[0003]

Fig. 1 is a schematic diagram showing a flow among a manufacturer, dealer, user and collecting center of the cartridge.

[0004]

The cartridge is usually sold by a manufacturer 1 of the equipment to which the cartridge is fitted

through a sales channel to a user 3. Namely, the user 3 purchases the cartridge from a dealer 2 in exchange for the cost and uses it.

[0005]

An used cartridge is brought to the dealer 2 by the user 3 and then packed in a collecting container by the dealer 2 to be sent to a collecting center 4 managed by the manufacturer 1 or the like. Alternatively, the user 3 sometimes directly packs the used cartridge in the collecting container and send it to the collecting center 4.

[0006]

Fig. 2 is a flowchart for explaining collecting work in the collecting center 4.

[0007]

For collecting, the dealer 2 or user 3 (hereinafter referred to as "customer") makes a request for collecting to the collecting center 4 or the like using a communication device such as a facsimile, which is received by the collecting center 4 (S1). The collecting center 4 having received the request for collecting generates a collecting slip for the customer (S2) to send the collecting container (box), with the slip attached, to the customer (S3). Then, the used cartridges sent from the customer are classified by a visual check or the like by an operator (S4) to be input via a keyboard or the like, thereby obtaining

collecting data by customer (S5).

[0008]

The customer is informed of a collecting rate calculated for the purpose of promotion of collecting the used cartridges. The collecting rate is basic of setting incentive to the customer. Namely, the collecting center 4 collates collecting data of the customer with a record of orders accepted (sale) to calculate the collecting rate (S6) and set the incentive, which is reported to the customer (S8). The report to the customer has been conventionally made by mail.

[0009]

Collecting the used cartridge with such an incentive introduced is extremely effective for improving the collecting rate.

[0010]

[PROBLEMS THAT INVENTION IS TO SOLVE]

As described above, the cartridge is not only used as the container containing the toner but also sometimes serves as a component with the consumable components incorporated such as the photosensitive drum, developing device, cleaning member or merely has a function of containing the toner. Thus, with regard to the cartridge only, there are various kinds of cartridges so that setting the incentive to all the cartridges by the collecting rate of the customer only

cannot be regarded as a useful setting method of the incentive. For this reason, as shown in Fig. 2, the collecting rate is calculated for respective kinds of the collected cartridges to set the incentive for respective kinds of the cartridge.

[0011]

Moreover, a target for collecting is not limited to the cartridge but includes a toner container and photosensitive drum for a copier, an ink container, cartridge and print head for a inkjet printer, other service parts, paper and OHP sheets and the like, and further includes a body of office equipment such as a printer body, copier body, and scanner body. In the following description, the target goods for collecting are sometimes referred to as "consumption articles".

[0012]

In this way, counting of the data in the collecting center 4 as described above and setting the incentive are extremely complex and troublesome, and it is considered to be difficult to count the data precisely because of classification errors or input errors by the operator.

[0013]

On the customer' side, since the counting of the data described above takes time, it is irritating that the latest condition of collecting cooperation cannot be grasped immediately and there is also a disadvantage

that it takes time to obtain result of the collecting cooperation.

[0014]

The present invention is made in order to solve the above problems individually or collectively and has its object to count data of collecting for consumption articles easily and precisely.

[0015]

Another object of the present invention is to enable a user to immediately grasp a collecting condition so that result of collecting cooperation is immediately reflected.

[0016]

Still another object of the present invention is to permit grasping in advance the consumption articles to be collected.

[0017]

A further object of the present invention is to flexibly provide an incentive.

[0018]

A still further object of the present invention is to permit a quicker response to a request for collecting the consumption articles from a client to a collecting center.

[0019]

[MEANS OF SOLVING PROBLEMS]

The present invention comprises the following

structure to achieve the above object.

[0020]

A collecting apparatus of the invention is characterized by having reception means for receiving a request for collecting consumption articles from a client, recording means for storing collecting data, which concerns the consumption articles requested for collecting, in a memory with the data associated with the client, and issuing means for issuing a collecting code for accessing the collecting data stored in the memory.

[0021]

Further, a collecting apparatus of the invention is characterized by having recording means for storing collecting data concerning consumption articles, which is inputted and transmitted via the Internet by a client in an input screen provided by the collecting apparatus, in a memory, issuing means for issuing a collecting code for accessing the collecting data stored in the memory, and displaying means for displaying the collecting data which is accessed with the collecting code collected together with the consumption articles in order to confirm that the consumption articles collected from the client coincide with the collecting data stored in the memory.

[0022]

Furthermore, a collecting apparatus of the

invention is characterized by having recording means for storing collecting data concerning the consumption articles, which is inputted and transmitted via the Internet by a client in an input screen provided by the collecting apparatus, in a memory, transfer means for transmitting the collecting code for accessing the collecting data stored in the memory, and displaying means for displaying the collecting data which is accessed with the collecting code collected together with the consumption articles in order to confirm that the consumption articles collected from the client coincide with the collecting data stored in the memory.

[0023]

Furthermore, A collecting apparatus of the invention is characterized by having issuing means for issuing a collecting code associated with the collecting data concerning consumption articles requested for collecting, and providing means for providing incentive based on the collecting code which is collected together with the consumption articles collected from a client.

[0024]

Furthermore, a collecting apparatus of the invention is characterized by having updating means for updating client's collecting data of consumption articles which is accumulated in a memory for respective clients, calculation means for calculating

information on incentive in compliance with the collecting data updated by the updating means, and providing means for providing information of order screen by which the client orders the consumption articles, wherein the information of order screen includes the information of the incentive.

[0025]

Furthermore, a collecting apparatus of the invention is characterized by having reading means for reading a collecting code which is sent together with consumption articles and includes at least information on kinds of the consumption articles, management means for managing a collecting condition of the consumption articles in compliance with the collecting code read by the reading means, and providing means for providing information for indicating the collecting condition managed by the management means to a computer externally connected via the Internet.

[0026]

Moreover, a collecting apparatus of the invention is characterized by having providing means for providing information of screen, for which collection of consumption articles is required and at least information indicating a kind of the consumption articles is inputted, to a computer communicably connected, and information means for informing the computer of a collecting code including the information

which is inputted via a screen based on the information of screen and indicates the kind of the consumption articles.

[0027]

An information processing apparatus of the invention for receiving a request to collect consumption articles is characterized by having reception means for receiving information of requesting collection transmitted from a computer connected via the Internet, wherein the information of requesting collection includes information indicating at least kinds and quantities of the consumption articles, generating means for generating a collecting code including the information indication at least of the kinds and quantities of the consumption articles based on the information of requesting collection received by the reception means, and transfer means for transmitting the collecting code generated by the generation means to the computer.

[0028]

A collecting method of the invention is characterized by receiving a request for collecting consumption articles from a client, storing collecting data, which concerns the consumption articles requested for collecting, in a memory with the data associated with the client, and issuing a collecting code for accessing the collecting data stored in the memory.

[0029]

Further, a collecting method of the invention is characterized by storing collecting data concerning consumption articles, which is inputted and transmitted via the Internet by a client in an input screen provided by a collecting apparatus, in a memory, issuing a collecting code for accessing the collecting data stored in the memory, and displaying the collecting data which is accessed with the collecting code collected together with the consumption articles in order to confirm that the consumption articles collected from the client coincide with the collecting data stored in the memory.

[0030]

Furthermore, a collecting method of the invention is characterized by storing collecting data concerning consumption articles, which is inputted and transmitted via the Internet by a client in an input screen provided by a collecting apparatus, in a memory, transmitting the collecting code for accessing the collecting data stored in the memory, and displaying the collecting data which is accessed with the collecting code collected together with the consumption articles in order to confirm that the consumption articles collected from the client coincide with the collecting data stored in the memory.

[0031]

Furthermore, a collecting method of the invention characterized by issuing a collecting code associated with collecting data concerning consumption articles requested for collecting, and providing incentive based on the collecting code which is collected together with the consumption articles collected from a client.

[0032]

Furthermore, a collecting method of the invention is characterized by having the steps of updating client's collecting data of consumption articles which is accumulated in a memory for respective clients, calculating information on incentive in compliance with the collecting data updated, and providing information of order screen by which the client orders the consumption articles, wherein the information of order screen includes the information of incentive.

[0033]

Furthermore, a collecting method of the invention characterized by reading a collecting code which is sent together with consumption articles and includes information indicating at least kinds of the consumption articles, managing a collecting condition of the consumption articles in compliance with the read collecting code, and providing information for displaying the collecting condition managed to a computer externally connected via the Internet.

[0034]

Moreover, a collecting method of the invention is characterized by providing information of screen, for which collection of consumption articles is required and information indicating at least kinds of the consumption articles is inputted, to a computer communicably connected, and informing a collecting code including the information which is inputted via a screen based on the information of screen and indicates the kinds of the consumption articles.

[0035]

An information processing method of the invention of receiving a request to collect consumption articles, is characterized by receiving information of requesting collection transmitted from the computer connected via the Internet, wherein the information of requesting collection includes information indicating at least kinds and quantities of the consumption articles, generating a collecting code including information indicating at least of the kinds and quantities of the consumption articles based on the information of requesting collection received, and transmitting the collecting code generated to the computer.

[0036]

[EMBODIMENT OF INVENTION]

A collecting system of consumption articles according to the present invention will be described below in detail with reference to the drawings. In the

embodiment, a cartridge used in equipment such as an electrophotographic printer, copier and facsimile device is taken for explanation as an example of the consumption articles, however, the present invention can be applied to other consumption articles. These may include, for example, a toner container and photosensitive drum for the copier, other service parts, paper, OHP sheets, an ink container, a cartridge and print head for an inkjet printer. For many of them, empty containers are desired to be collected, for example, the toner container and a package box of the toner for the copier are desired to be collected.

[0037]

Summary of a Collecting System

Fig. 3 is a view of a sequence showing an outline of collecting of the consumption articles in the collecting system of this embodiment.

[0038]

For collecting, a client 6 in Fig. 3 accesses a collecting system 5 in the Fig. 3 via a page of a Web site presented by the collecting center 4 in Fig. 1 (S11), and when certified as a registered user by the collecting system 5 (S12), requests collecting of the consumption articles (S13). This request includes information on kinds and number (quantity) of the consumption articles which are desired to be collected, and the client may also tell an expected date of

collecting or area for collecting to the collecting center 4.

[0039]

The collecting system 5 in Fig. 3 receives the request for collecting via the Internet or the like and stores the data of the kinds and number (quantity) of the consumption articles to be collected associated with the user in the memory (S14) and transmits a collecting code corresponding to the data to the client 6 (S15). The client 6 having received the collecting code generates a collecting slip including at least the collecting code received (S16) and dispatches the consumption articles, with the collecting slip attached, to the collecting center 4 (S17).

[0040]

The collecting center 4 reads out the collecting code recorded on the collecting slip attached to the consumption articles dispatched (S18), confirms that the consumption articles are collected in compliance with the collecting data corresponding to the collecting code (S19) and calculates the collecting rate and sets the incentive for respective users and consumption articles (S20). If necessary, the client 6 is informed of the collecting rate and incentive (S21).

[0041]

The collecting system 5 may also generates the collecting slip including at least the collecting code

after receiving the collecting request and send a collecting container such as a collecting box, with the collecting slip attached, to the client 6. The collecting system also works out by a manner that the client having received the collecting container packs the consumption articles for which the collecting is requested in the collecting container to be dispatched to the collecting center 4.

[0042]

In short, it is sufficient if the collecting code stored in the memory such as a barcode or alphanumeric character string for accessing the information (collecting data) on the kind and number (quantity) of the consumption articles to be collected and on the user is readably attached or recorded on the consumption articles to be collected or their packages.

[0043]

Comparing the kind and number (quantity) of the supplies to be reused which are shown by the collecting data read out from the memory with the kind and number (quantity) of the supplies actually collected, the collecting data is corrected if there is a difference in the kind and number (quantity) or if there are the consumption articles impossible to be reused such as the one made by other makers or the like. Then, the collecting rate is calculated from the collecting data of the user stored in the memory (having been confirmed

or corrected) and the record of the orders accepted (sale), and the incentive is set by referring to (or calculating) the table based on the calculated collecting rate.

[0044]

In the series of collecting process in the above collecting center 4, in a work associated with the confirmation of the collecting goods in the step S19, comparison of the data read out from the collecting code with the goods actually collected may be carried out by a man, or of course may be automatically carried out using a device which utilizes image recognition to automatically read out the barcode or the like which carries the data of the kinds or the like concerning the consumption articles attached in advance to the consumption articles.

[0045]

Arrangement of Collecting System

Fig. 4 is a block diagram showing an arrangement and connection of a network of the collecting center 4 and user 6, and Figs. 14 to 16 are flowcharts for explaining a process of a sale/collecting system. In this embodiment, the description is made on the system including the sale and collecting of the office supplies together, but it is extremely easy to utilize the sale system and/or collecting system 5 independent of the sale/collecting system.

[0046]

A PC 24, Web server 13, DB server 14, AP server 15, PC 16 and PC 18, respectively, shown in Fig. 4 comprise at least arrangements which a typical computer comprises such as a CPU (Central Processing Unit), memory, communication part and the like, and each step mentioned below of the flowcharts shown in Figs. 14 to 16 is achieved by the fact that the CPU provided in each device reads out and carried out a program code stored in the memory. In Fig. 4, the server devices are functionally classified into plural devices, and in the description of each step of the flowcharts shown in Figs. 14 to 16, any of the devices carries out the process, but of course, physically both one device and plural devices can achieve the process of each step of the flowcharts shown in Figs. 14 to 16 if the devices logically have each function of the Web server 13, DB server 14, AP server 15, PC 16 and PC 18.

[0047]

• Login

A left side in Fig. 4 shows a network system of the collecting center 4. The user 6 uses the personal computer (PC) 24 to access the Web server 13 which is a window of the sale/collecting system via gateways 23 and 12 connected to a wide area communication network 11 such as the Internet and logs in (S31 in Fig. 14). The Web server 13 provides the PC 24 operated by the

user 6 with a login screen shown in Fig. 5. The more proper expression is "provides the PC 24 with HTML (Hyper Text Markup Language) data for displaying a screen", but for easier description, it is described as "provides with a screen".

[0048]

The Web server 13 requests a "Client Number (User Code)" and "Password" of the user 6 and passes the received data to the application (AP) server 15 in which a software is activated which plays a central role of the collecting system 5. The AP server 15 compares the input user code and password with the user data obtained by the database (DB) server 14 to certify that the user is registered (S32 in Fig. 14). When the user is registered, a selection screen of processes shown in Fig. 6 is provided to PC 24 via the Web server 13 (S34 in Fig. 14).

[0049]

When the user 6 is unregistered, user registration can be effected by pushing a [Register] button of the screen in Fig. 5 (S33 in Fig. 14). In the user registration screen which description is omitted, the user 6 inputs necessary matters such as a name (corporate name), name of a person in charge when the user is a corporation, postal code, address, telephone number, facsimile number, e-mail address, name of the equipment used and the like. Such information is

stored in the DB server 14 and the above mentioned user code and password are issued. The issue of the password to the user is carried out by e-mail, mail and the like.

□˜˜□˜□

• Purchase of Office Supplies

When "Purchase Office Supplies" is clicked in the screen of Fig. 6 (S36 in Fig. 14), the AP server 15 provides the PC 24 with a purchase screen of the office supplies shown in Fig. 7 via the Web server 13 (S37 in Fig. 14). The user 6 selects model numbers of the office supplies which the user desires to purchase and inputs the quantity. Fig. 7 shows an example when the model numbers of the cartridges "CRG-1" and "CRG-2" are input. The AP server 15 obtains from the DB server 14, a unit price corresponding to the input model number and a discount rate to a total amount to transmit them to the PC 24 so that the unit price and the discount rate are indicated in real time on the purchase screen (S38 in Fig. 14). The unit price corresponding to the input model number and the discount rate corresponding to the model number may be obtained from the DB server 14. The discount rate includes the above described incentive.

[0051]

The user 6 lists goods desired to purchase, confirms their amount to be charged or the like,

corrects the list if there is any change, and pushes a [Transmit] button shown in Fig. 7 (S39 in Fig. 14), then the order for the office supplies is completed. After that, the AP server 15 carries out processes such as confirmation of a content of the order, setting and confirmation of a due date (S40 in Fig. 14), and a process of accepting the order (S41 in Fig. 14), which detailed description is omitted since it has no direct relation to this embodiment.

[0052]

Then, the process returns to the step S34 where the selection screen of the process shown in Fig. 6 is again provided to the PC 24 via the Web server 13. The user 6 pushes a [logout] button to log off when the desired process is finished (S35 in Fig. 14).

[0053]

• Request for Collecting

When "Request for Collecting of Used Business Supplies" is clicked in the screen of Fig. 6 (S36 in Fig. 14), the AP server 15 provides the PC 24 with a selection screen of collecting manners shown in Fig. 8 via the Web server 13 (S51 in Fig. 15). The user 6 can select the collecting manner as desired from a lump-sum collecting or an individual collecting and clicks either of them (S52 in Fig. 15). The AP server 15 has a recognizing function for recognizing that the user selects the lump-sum collecting or individual

collecting and recognizes that the user selects the lump-sum collecting or individual collecting to provide the user with a screen corresponding to each of them via the Web server 13.

[0054]

Fig. 9 shows a screen which is provided in a step S53 when the user 6 desires the lump-sum collecting. The user 6 selects the model number and quantity of the consumption articles desired for the lump-sum collecting and then pushes the [Transmit] button (S54). In Fig. 9, the AP server 15 in Fig. 4 stores "CRG-1, n" and "CRG-3, m" as the above described collecting data in the DB server 14 in Fig. 4 associated with the user 6 (n and m mean the quantity of the consumption articles to be contained in the collecting container) (S55).

[0055]

Further, the AP server 15 in Fig. 4 arranges for sending the collecting container corresponding to the selected supplies to the user 6 (S56). More specifically, an invoice and the above described collecting slip are printed by a printer 19 in Fig. 4, and in accordance with the invoice, the collecting container with the collecting slip attached is dispatched to the user 6.

[0056]

The client 6 stores the consumption articles in

the collecting container and requests collecting of the collecting center 4 when the collecting container is filled. The above description has been made on the assumption that the client 6 desires the lump-sum collecting. However, when the information of the client such as a dealer which deals with large numbers of office supplies is recognized from the DB at the time of login of the request screen, the screen for the lump-sum collecting in Fig. 9 can be directly displayed after clicking "Request for Collecting of Used Business Supplies" in Fig. 6, thereby permitting reduction of a burden of the client.

[0057]

Fig. 10 shows a screen which is provided (displayed) in a step S57 when the client 6 desires the individual collecting. The client 6 selects the model number of the consumption articles desired for the individual collecting and inputs the quantity and desired collecting date and then pushes the [Transmit] button (S58). In Fig. 10, the AP server 15 in Fig. 4 stores "CRG-1, 1", "CRG-1, 1", "CRG-1, 1" and "CRG-3, 1" as the collecting data in the DB server 14 in Fig. 4 associated with the user 6 (S59). Further, the AP server 15 detects a collectable date close to the desired collecting date based on the data of the DB server 14. If the desired collecting date does not coincide with the collectable date, there is a

procedure that the AP server 15 lists the collectable date close to the desired collecting date to be selected by the user 6, which detailed description is omitted.

[0058]

When the expected collecting date is decided, the AP server 15 in Fig. 4 transmits a collecting slip data to the PC 24 for having the user 6 print the above described collecting slip (S60). If formed by the HTML data which is displayable by a browser or Graphics Interchange Format (GIF) image, the collecting slip data can be printed by the browser activated in the PC 24 by a printer 22 or 25. However, when printing with high resolution is required, such as in the case where the collecting data is indicated as a barcode, it is desirable to send the collecting slip data to the PC 24 as Portable Document Format (PDF) to be printed. The above description is made on the assumption that the user has the printer, however, in the case where the user has no printer, it is possible to have the user freely select obtaining manners of the collecting slip by providing a selection screen of transmitting the collecting slip data to the user of transmitting via the Internet or mailing the collecting slip generated by the collecting center. The AP server 15 recognizes the selection by the user and has the user obtain the collecting slip by either manner depending upon the

recognition.

[0059]

Then, the process returns to the step S34 where the selection screen of the process shown in Fig. 6 is again provided to the PC 24 via the Web server 13. The client 6 pushes the [logout] button to log off when the desired process is finished (S35).

[0060]

Fig. 11 shows the collecting slip printed by the collecting center or user. In Fig. 10, the number of the cartridges CRG-1 is three and CRG-3, one, so that three collecting slips for CRG-1 and one collecting slip for CRG-3 are printed. When the collecting slip is generated by the user, it is effective in printing the collecting slip to place a recording paper of A4 size coated with adhesive on its back side in a package box for the consumption articles. The size of the recording paper is not limited to A4 but the recording paper of any size such as B4 or A5 may be used which can be output by the printer.

[0061]

The user 6 cuts the printed collecting slip and correctly attaches the collecting slip having been cut to the used office supply to be collected or its package box. Then, the preparation for the individual collecting is completed.

[0062]

The above description is made on an example that the collecting center 4 prepares collecting service. This makes it possible to collect the consumption articles effectively utilizing the service for delivering the office supplies. The transporting manner of the consumption articles to the collecting center 4 is of course not limited to this.

[0063]

• Confirmation of Incentive or the Like

When "Confirm Collecting Rate and Incentive" is clicked in the screen of Fig. 6 (S36), the AP server 15 in Fig. 4 provides the PC 24 with a confirmation screen shown in Fig. 12 via the Web server 13 (S71). When desiring to see the detailed collecting rate and incentive, the user 6 pushes the [Detail] button (S72). When the [Detail] button is pushed, the AP server 15 provides the PC 24 with a detail screen shown in Fig. 13 via the Web server 13 (S73). When a [Return] button is pushed, the process returns to the step S34 where the selection screen of the process shown in Fig. 6 is again provided to the PC 24 via the Web server 13. The client 6 pushes the [logout] button to log off when the desired process is finished (S35).

[0064]

Indicated in the confirmation screen shown in Fig. 12, are an average collecting rate and incentive, and indicated in the detail screen shown in Fig. 13 is a

total average value of the collecting rate and incentive for respective office supplies from the user which orders have been often accepted so far and data with respect to each office supply.

[0065]

• Process after Collecting

Fig. 17 is a flowchart showing a process of the collecting system 5 shown in Fig. 3 after arrival of the consumption articles. Here, the process of each step shown in Fig. 17 is realized by the fact that the CPU provided in the above described server device carries out a process based on a program code stored in a non-volatile memory of the server device placed in the collecting center 5. For the server device, the Web server 13, DB server 14, AP server 15 and PC 16 shown in Fig. 4 can be applied, or a server device logically having each function of the Web server 13, DB server 14, AP server 15 and PC 16 can be applied.

[0066]

When the used office supply reaches the collecting center, the collecting code recorded on the collecting slip is read out (S81) to be input to the AP server 15. If the collecting code is the barcode, a reader 17 connected to the PC 16 shown in Fig. 4 reads out the barcode, which data is transmitted to the AP server 15.

[0067]

The AP server 15 reads out the collecting data

corresponding to the input collecting code from the DB server 14 to be provided to the PC 16 or 18. Displayed on the screen of the PC 16 or 18 is the information represented by the collecting data such as the name of the user, request date, expected collecting date, area and kind and quantity of the collecting goods so that it can be easily confirmed that the collecting data coincides with the collecting goods (S82). The confirmation of the content of the collecting goods may be carried out by a man, or may be carried out by using a device which utilizes the image recognition to automatically read out the barcode or the like attached to the used office supply on which the data concerning the used office supply is recorded. If the collecting data does not coincide with the collecting goods, the collecting data is corrected (S83).

[0068]

Next, the AP server 15 in Fig. 4 calculates the collecting rate for respective kinds of the collecting goods (S84). Namely, accumulated collecting data of the user is read out from the DB server 14 and the accumulated collecting data is updated by the collecting data at this time. Further, the data of the orders accepted of the user is read out from the DB server 14 to calculate the collecting rate for respective kinds of the used office supply from the record of the quantity of shipping and the accumulated

collecting data. Then, it is confirmed that there is the kind of the used office supply having the collecting rate of more than 100% (S85), and if all the rates are not more than 100%, they are stored in the DB server 14 as the collecting rates for respective kinds of the user (S86).

[0069]

Then, The AP server 15 averages all the collecting rates for respective kinds of the user and calculates an average collecting rate of the user to be stored in the DB server 14 (S87). If the average collecting rate is more than a predetermined value □ (S88), the incentive is set using an incentive conversion table mentioned below (S89).

[0070]

Next, the AP server 15 calculates the average collecting rate of all the users (S90) and if the average collecting rate is more than a predetermined value □ (S91), finishes the process. If the average collecting rate is less than the predetermined value □, the AP server 15 gives a warning (S92). The below mentioned treatment is carried out in compliance with the warning (S93).

[0071]

On the other hand, when there is the kind having the collecting rate of more than 100% in the step S85, the process is moved to the exception process shown in

Figs. 18A and 18B. Here, likewise Fig. 17A, the process of each step shown in Figs. 18A and 18B is realized by the fact that the CPU provided in the above described server device carries out the process based on the program code stored in the non-volatile memory of the server device placed in the collecting center 5. For the server device, the Web server 13, DB server 14, AP server 15 and PC 16 shown in Fig. 4 can be applied, or the sever device logically having each function of the Web server 13, DB server 14, AP server 15 and PC 16 can be applied.

[0072]

First, verification is conducted that there is any error in the collecting data stored in the DB server 14 (S94) and if there is an error in the data (S95), the collecting data stored in DB server 14 and/or data of orders accepted are corrected (S100), and the process returns to the step S84.

[0073]

When there is no error in the collecting data stored in the DB server 14, detailed reason thereof is checked (S96). Namely, the e-mail with a questionnaire or the like attached is sent to the user to obtain an answer. The following reasons are considered as the reasons for the collecting rate of more than 100%. The reason (3) is stated on the assumption that a business place or post of a certain company is registered as the

user while the consumption articles are taken off from other business place or post.

[0074]

The reasons for the collecting rate of more than 100%:

(1) The consumption articles having been owned by the user before registration are collected.

(2) The consumption articles sold by other route are collected.

(3) The consumption articles taken off from other places are collected.

[0075]

If there is an answer from the user (S97), proper treatment is effected in response to the contents of the answer. For example, when the answer is the reason (1), there is no specific problem so that the process returns to the step S86 via the steps S97, S98 and S99. When the answer is the reasons (2) or (3), consulting with the user, the data is corrected (S100) and the process returns to the step S84.

[0076]

If there is no answer from the user (S97), the warning is given (S101) and a manager or the like of the collecting system 5 checks the cause of obtaining no answer or the like (S102).

[0077]

When the average collecting rate of the user is

less than the predetermined value a in the step S88, the process is moved to the exception process shown in Fig. 18A. First, verification is conducted that there is any error in the collecting data stored in the DB server 14 (S103) and if there is an error in the data (S104), the collecting data stored in the DB server 14 and/or data of orders accepted are corrected (S107), and the process returns to the step S84.

[0078]

When there is no error in the collecting data stored in the DB server 14, detailed reason thereof is checked (S105). Namely, the e-mail with a questionnaire or the like attached is sent to the user to obtain an answer.

[0079]

The reason for the collecting rate less than □□

(4) The consumption articles are disposed of.

(5) Other collecting route is used.

[0080]

If there is the answer from the user (S106), in response to the content of the answer, collecting cooperation is requested or the reason for using other collecting route is checked separately to obtain the information for improving the collecting system 5 and its service.

[0081]

Then, the process returns from the step S106 to

step S89 without correcting the data.

[0082]

If there is no answer from the user (S106), the warning is given (S108) and the manager or the like of the collecting system 5 checks the cause of obtaining no answer or the like (S109).

[0083]

Countermeasure to Low Collecting Rate

When it is detected that the average collecting rate is less than the predetermined value □ of all the users in the step S91, it means that collecting by the collecting system 5 does not function sufficiently. In this case, a factor thereof is first checked and the treatment is effected in compliance with the result. For example, the collecting cooperation is requested or the promotion for promoting collecting (increasing a ratio of the incentive or the like when cooperating in collecting for a predetermined term) is effected to improve the average collecting rate.

[0084]

The AP server 15 monitors not only the average collecting rate of all the users but also the average collecting rate for respective kinds of the consumption articles of all the users. When the average collecting rate for respective kinds becomes less than a predetermined value g, the warning is given likewise. In this case, with respect to the target consumption

articles, the collecting cooperation is requested or the promotion for promoting collecting (increasing the ratio of the incentive when cooperating in collecting the target consumption articles for the predetermined term) is effected to improve the average collecting rate.

[0085]

The needs for improving the collecting rate of the specific kind arise in the case not only where the collecting rate is lowered but also where it is predicted that demand for the consumption articles of the specific kind is increased. Also in this case, the collecting cooperation is requested or the promotion for promoting the collecting (increasing the ratio of the incentive when cooperating in collecting the target consumption articles for the predetermined term) is effected to improve the average collecting rate.

[0086]

Fig. 19 is a view showing a login screen of a sale/collecting system during the promotion term for promoting collecting of the specific used office supply which is provided by the Web server 13 to a terminal device used by the user. Substantially the same login screen may be prepared in the case of improving the entire collecting rate. It is, of course, effective to indicate a banner for promotion on not only the login screen but also other screens.

[0087]

Moreover, more flexible incentive can be provided by varying the above described promotion manner of the incentive for respective areas or countries.

[0088]

Setting of Incentive

Fig. 20 shows a table of relationship of the collecting rate, kind of the office supply and incentive, and Fig. 21 shows a table of relationship between the quantity of orders accepted, kind of the office supply and discount rate. These tables are stored in the DB server 14.

[0089]

The AP server 15 can refer to the table shown in Fig. 20 and obtain the incentive corresponding to the collecting rate for respective kinds of the office supplies. Then, the AP server 15 generates the data of the incentive value to be indicated on the confirmation screen shown in Figs. 12 and 13.

[0090]

The AP server 15 can also refer to the table shown in Figs. 20 and 21 and obtain the collecting rate by office supplies and discount rate corresponding to the quantity of the orders accepted to thereby count the data and calculate the discount rate to the user. Then, the data of the value of the discount rate is generated which is to be indicated on the purchase screen shown

in Fig. 7.

[0091]

The above description was made on an example that the incentive and discount rate are decided in compliance with the collecting rate and transaction scale (charge, quantity) per a predetermined term. However, the incentive and discount rate may be decided by not only the collecting rate and quantity of the orders accepted but also the quantity of accumulated orders accepted, kind of equipment which the office supply accommodates, limited collecting term, collecting area and the like. In short, it is sufficient that the incentive and discount rate are decided such as to construct a system where the used office supply is effectively collected. For example, during the above described promotion term which improves the collecting rate, a table with a large incentive set as shown in Fig. 22 is used instead of the table shown in Fig. 20. Also the description is made on an example of the discount as the incentive to the user, but the incentive to the user may be in the form of providing presentation such that points are added depending upon the quantity or charge of the orders accepted and that one supply is provided to the user for free when certain amounts of points are accumulated.

[0092]

Analysis of Shipping and Collecting Interval

In the DB server 14 of the sale/collecting system described above, the data of the orders accepted and collecting data are accumulated for respective users and kinds of the office supplies. These data permit predicting the shipping and collecting interval for respective kinds of the office supplies.

[0093]

Fig. 23 is a view explaining a prediction sequence of the collecting and shipping.

[0094]

By the processes from the steps S81 to S83 shown in Fig. 17, the collecting date 30, the collecting quantity 31 and collecting area 32 for respective kinds can be obtained. These are stored in the DB server 14 as the record 34 of collecting date, record 35 of collecting quantity and record 33 of collecting area separately from the above described collecting data.

[0095]

Accordingly, by analyzing the record 34 of collecting date, the collecting interval 42 for respective kinds can be obtained such as "CRG-2; every three days". In addition, by incorporating the collecting interval 42 for respective kinds with the record 35 of collecting quantity, a normalized collecting interval 43 for respective kinds can be obtained such as "CRG-2; collected every 1.2 days per

one".

[0096]

From the record 34 of collecting date and record 35 of collecting quantity, monthly variation and distribution 44 of collecting quantity for respective kinds can be obtained. The normalized collecting interval 43, monthly variation and distribution 44 of collecting quantity and record 33 of collecting area for respective kinds as so obtained can be reflected on a managing plan 48 of the collecting center 4.

[0097]

The same applies to shipping. By the processes from the steps S81 to S83 shown in Fig. 17, a shipping date 39, shipping quantity 40 and shipping area 41 for respective kinds can be obtained. These are stored in the DB server 14 as the record 37 of shipping date, record 36 of shipping quantity and record 38 of shipping area separately from the above described shipping data.

[0098]

Accordingly, by analyzing the record 37 of shipping date, the shipping interval 47 for respective kinds can be obtained such as "CRG-3; every seven days". In addition, by incorporating the shipping interval 47 for respective kinds with the record 36 of shipping quantity, a trend 46 of the shipping interval for respective kinds can be obtained such as "CRG-2; ship

one per 0.7 days".

[0099]

From the record 37 of shipping date and record 36 of shipping quantity, monthly variation and distribution 45 of shipping quantities by respective kinds can be obtained. The trend 46 of the shipping interval, monthly variation and distribution 45 of shipping quantity and record 38 of shipping area for respective kinds as so obtained can be reflected on a production plan 50 of a manufacturer of the office supply.

[0100]

Moreover, the data, record 33 of collecting area and record 38 of shipping area obtained by the above analysis are utilized in a traveling plan 49 of the service for delivering the office supply to the client and collecting the used office supply from the client to achieve an efficient travel.

[0101]

In this way, according to the collecting system of the office supply of this embodiment, the collecting slip attached to the used office supply to be collected and the collecting code recorded on the collecting slip attached to the collecting container are read out to thereby permit accessing the corresponding collecting data.

[0102]

Accordingly, counting of the data in the collecting center 4 collecting the consumption articles of various kinds, namely calculation of the collecting rate for respective kinds and calculation of average collecting rate can be facilitated and the incentive is immediately obtained from the obtained collecting rate by referring to the table to thereby permit remarkable improvement of working efficiency in the collecting center 4.

[0103]

If the working efficiency is improved in the collecting center 4, of course, an improvement of the service to the user also becomes possible such as increasing of the incentive.

[0104]

On the other hand, the user can count the data described above in shorter time and can immediately grasp the condition of the latest collecting cooperation so that the result of the collecting cooperation comes to be immediately reflected on the incentive. Consequently, more cooperation of the user can be obtained and the improvement of the collecting rate is expected.

[0105]

Further, reduction of the collecting rate can be immediately detected to be treated so that the reduction of the collecting rate can be prevented.

Especially, not only the reduction of the collecting rate of all the users and all the supplies but also the reduction of the collecting rate for respective users and office supplies can be detected, which permits carrying out the fine treatment as described above.

[0106]

Example of Supplies

Fig. 24 is a view showing a cartridge 810 used in a printer 100.

[0107]

A semiconductor memory 810a is incorporated in the cartridge 810. When the cartridge 810 is fitted to the printer 100, the semiconductor memory 810a is electrically connected to a controller of the printer 100 to be readable and writable.

[0108]

Though not shown in Fig. 24, an indicating panel may be provided which indicates a type ID showing a type of the cartridge 810, serial number, total number of prints and remaining amount of toner and the like. Of course, the type ID and serial number are decided at the time of production and not changed so that they may be recorded on a casing of the cartridge 810 by printing or the like. On the other hand, the total number of prints and the remaining amount of toner vary depending upon use of the cartridge 810 so that the indicating panel is required for indicating them.

[0109]

For the indicating panel, a liquid crystal indicating panel of compact size or the like can be used which includes its control circuit and a backup power supply. If utilizing an EEPROM or a flash memory as the semiconductor memory 810a and utilizing an indicating device such as an indicating panel using a ferroelectric liquid crystal which can maintain indicating when the power supply is cut off, the power may be externally (for example, from the printer 100) supplied only when the data of the semiconductor memory 810a is rewritten and even the backup power supply is unnecessary.

[0110]

In this way, having the cartridge 810 per se hold and indicate identification information of the cartridge 810 such as the type ID and serial number permits carrying out identification of the cartridge 810 easily and precisely from its appearance or by reading out the data of the semiconductor memory 810a.

[0111]

Moreover, having the cartridge 810 per se hold and indicate the information on the condition of use of the cartridge 810 such as the remaining amount of toner and number of prints allows determination whether that the cartridge is used or not be made easily and precisely from its appearance or by reading out the data in the

semiconductor memory 810a.

[0112]

Fig. 25 shows the data stored in the memory 810a.

[0113]

Stored in the memory 810a are data 901 showing the total number of prints printed using the cartridge 810 and the total number of jams, data 902 and 903 showing the number of prints and the number of jams for respective sizes of paper. In Fig. 10, the number of prints or number of paper is called "count". These data are counted up each time one page is printed by the printer 100 fitted with the cartridge 810.

[0114]

Also stored in the memory 810a is the data 904 showing the remaining amount of toner. The data 904 may be a value showing the remaining amount of toner per se or may be a flag showing an output of a sensor for detecting reduction of the toner to a predetermined amount, so-called, a toner-low output.

[0115]

Further stored in the memory 810a is data 905 showing start and end dates of use and data 906 showing the term of use. Usually provided in the printer 100 is a sensor for detecting opening and closing of a cover of a fitting portion of the cartridge. For example, when the opening and closing of the cover is detected, a controller in the printer 100 compares the

serial number of the cartridge 810 stored in the non-volatile memory with the serial number read out from the cartridge 810 after detecting the cover, and if they do not coincide with each other, determines that the cartridge 810 is replaced. Then, the controller writes the data showing the date at that time as the start date of use in the memory 810a. In addition, at the time of power on or every 24 hours, data representing the date at that time is written in the memory 810a as the end date of use, as well as data representing the term of use is written in the memory 810a.

[0116]

Moreover, stored in the memory 810a is data 907 written at the time of production or shipping of the cartridge 810 and showing the type ID and serial number which are the above described identification information. The data 907 may include data showing a service center where to make a contact at the time when the toner runs out.

[0117]

Detailed Example of Device Where the Supplies are Used

Fig. 26 is a schematic view showing a configuration of a laser beam printer (LBP) fitted with the office supply of this embodiment.

[0118]

In Fig. 26, an image scanner 2201 reads out an

original image and carries out a digital image process of the original image. A printer 2202 forms an image corresponding to the original image read out by the image scanner 2201 on a recording paper to be output.

[0119]

In the image scanner 2201, reference numeral 2220 denotes a pressing plate of the original; 2203, a stand glass (platen glass) of the original, and the original 2204 is placed with its recording surface downward in the Figure to be fixed by the pressing plate 2200 of the original. Light output from the fluorescent lamp 2205 is reflected by the original 2204, introduced by mirrors 2206, 2207 and 2208 to focus the image by a lens 2209 on a linear CCD image sensor (hereinafter called "CCD") 2210. The lens 2209 is provided with a cutting filter of infrared light. The CCD 2210 separates reflected light of the original 2204 into each color of red (R), green (G) and blue (B) to be read out and sends an analog image signal obtained to an image processing portion 2211. Here, a unit having the fluorescent lamp 2205 and mirror 2206 is mechanically moved in a sub scanning direction perpendicular to the CCD 2210 at speed V, and a unit having mirrors 2207 and 2208 at speed V/2, so that the entire original 2204 is read out.

[0120]

The CCD 2210 is, for example, in the form of three

lines (1210-1 to 1210-3) of light receiving pixel with approximately 7500 pixel of each color of RGB and can read out 297 mm transversely of the original of A3 size at the resolution of 600 dpi. In order to read out 297 mm transversely of the original of A3 size at the resolution of 400 dpi, one-dimensional image sensor with approximately 5000 pixel of each color of RGB is sufficient.

[0121]

An image processing portion 2211 converts the analog image signal which is output from the CCD 2210 into a digital image signal and forms images of each color component of yellow (Y), magenta (M), cyan (C) and black (BK) corresponding to the colors of the toners for printing to be sent to a printer 2202. One of the color component images YMCBK is sent to the printer 2202 per one scanning of the original (one sub scanning) in the image scanner 2201. Accordingly, by four times scanning of the original, the image signals of four color components are transmitted in turn to the printer 2202 to complete printing of one sheet. If there is enough memory in the image processing portion 2211, it is possible to store the image signal in the memory which is obtained by one scanning of the original and to dispense with the remaining three times scanning of the original.

[0122]

The image signals of the color components of YMCBK transmitted in turn from the image processing portion 2211 in this manner are input to a laser driver 2212 in the printer 2202. The laser driver 2212 lights a laser diode 2213 in response to the input image signals. The laser beam output from the laser diode 2213 scans over a photosensitive drum 2217 through a polygon mirror 2214, f-□ lens 2215 and mirror 2216 to form an electrostatic latent image on the photosensitive drum 2217.

[0123]

The electrostatic latent image on the photosensitive drum formed by the laser beam is developed by developing devices 2219 to 2222 having the toners of yellow, magenta, cyan and black. Namely, four developing devices 2219 to 2222 abut in turn against the photosensitive drum 2217 to effect developing by the color toners.

[0124]

The recording paper supplied from recording paper cassettes 2224 or 2225 is wound around the transferring drum 2223 by the action of static electricity and the toner image on the photosensitive drum 2217 is transferred thereto. In a recording process using four color toners, the toner of each color is transferred to the recording paper in a superposed manner by four times rotations of the transferring drum 2223. Then,

the recording paper is separated from the transferring drum 2223 and the toner image is fixed thereon in a fixing unit 2226 to be discharged out of the apparatus.

[0125]

In such an LBP, the photosensitive drum 2217, toner or cartridge accommodated in developing devices 2219 to 2222, recording papers accommodated in the recording paper cassettes 2224 and 2225 are consumable supplies.

[0126]

Though not shown in the figure, the laser beam printer shown in Fig. 26 is provided, for example, with an interface with an external device such as a personal computer and can print the image based on the image data sent from the external device on the recording medium.

[0127]

Fig. 27 is a schematic view showing a configuration of an inkjet printer (IJRA) fitted with the office supply of this embodiment.

[0128]

In Fig. 27, a carriage HC, which works with a driving motor 5013 rotatably in a reverse direction and engages with a helical groove 5005 of a lead screw 5004 rotating via gears 5011 and 5009 for transmitting a driving force, has a pin (not shown) and is moved back and forth in directions of arrows a and b. The

carriage HC is fitted with an ink jet cartridge IJC.

[0129]

Reference numeral 5002 denotes a paper pressing plate, which presses the recording paper P against the platen 5000 across a moving direction of the carriage HC. Reference numerals 5007 and 5008 denote photo sensors which are detecting portions of a home position for confirming that there is a lever 5006 of the carriage HC in an area where the sensor is placed in order to switch a rotational direction of the driving motor 5013. Reference numeral 5016 denotes a member for supporting a cap member 5022 which caps a front of a recording head IJH; 5015, a sucking portion for sucking the inside of the cap, which restores sucking of the recording head IJH through an opening in the cap 5023.

[0130]

Reference numeral 5017 denotes a cleaning blade; 5019, a member for enabling the blade to move back and forth, which are supported by a body support plate 5018. It is needless to say that the cleaning blade is not limited to this form but that the known cleaning blade can be applied to this embodiment. Reference numeral 5021 denotes a lever for starting sucking in sucking restoration, which moves with movement of a cam 5020 engaging with the carriage HC and by which a driving force from the driving motor 5013 is controlled at a

known transmission portion such as a clutch switching.

[0131]

The above described capping, cleaning and sucking restoration are adapted to carry out desired processes at their corresponding position by the action of the lead screw 5004 when the carriage HC comes to the area of the home position side, however, it is sufficient to have them carry out desired operation at known timings.

[0132]

In such an IJRA, the ink jet cartridge IJC and ink fitted therein are the consumable supplies.

[0133]

[Other Embodiment]

The present invention can be applied to a system constituted by a plurality of devices (e.g., host computer, interface, reader, printer) or to an apparatus comprising a single device (e.g., copying machine, facsimile machine).

[0134]

Further, the object of the present invention can be also achieved by providing a storage medium storing program codes for performing the aforesaid processes to a system or an apparatus, reading the program codes with a computer (e.g., CPU, MPU) of the system or apparatus from the storage medium, then executing the program. In this case, the program codes read from the storage medium realize the functions according to the

embodiment, and the storage medium storing the program codes constitutes the invention. Furthermore, besides aforesaid functions according to the above embodiment are realized by executing the program codes which are read by a computer, the present invention includes a case where an OS (operating system) or the like working on the computer performs a part or entire processes in accordance with designations of the program codes and realizes functions according to the above embodiment.

[0135]

Furthermore, the present invention also includes a case where, after the program codes read from the storage medium are written in a function expansion card which is inserted into the computer or in a memory provided in a function expansion unit which is connected to the computer, CPU or the like contained in the function expansion card or unit performs a part or entire process in accordance with designations of the program codes and realizes functions of the above embodiment.

[0136]

In a case where the present invention is applied to the aforesaid storage medium, the storage medium stores program codes corresponding to the flowcharts described in the embodiment.

[0137]

[EFFECTS OF INVENTION]

As described above, the present invention can count data of collecting for consumption articles easily and precisely.

[0138]

Further, the present invention can be to enable a user to immediately grasp a collecting condition so that result of collecting cooperation is immediately reflected.

[0139]

Furthermore, the present invention can be to permit grasping in advance the consumption articles to be collected.

[0140]

Furthermore, the present invention can be to flexibly provide an incentive.

[0141]

Moreover, the present invention can be to permit a quicker response to a request for collecting the consumption articles from a client to a collecting center.

[BRIEF DESCRIPTION OF DRAWINGS]

[Fig. 1] A diagram showing a flow of a toner cartridge;

[Fig. 2] A flowchart for explaining collecting work in a collecting center;

[Fig. 3] A schematic diagram showing a sequence of collecting of consumption articles in a collecting

system of the embodiment;

[Fig. 4] A block diagram showing an arrangement and connection of a network of the collecting center and a user;

[Fig. 5] A view showing a login screen of a sale/collecting system;

[Fig. 6] A view showing a selection screen of processes;

[Fig. 7] A view showing a purchase screen of office supplies;

[Fig. 8] A view showing a selection screen of collecting manners;

[Fig. 9] A view showing a screen displayed when a lump-sum collecting is desired;

[Fig. 10] A view showing a screen displayed when an individual collecting is desired;

[Fig. 11] A view showing a collecting slip;

[Fig. 12] A view showing a confirmation screen;

[Fig. 13] A view showing a detail screen;

[Fig. 14] A flowchart for explaining a processing in the sale/collecting system;

[Fig. 15] A flowchart for explaining a processing in the sale/collecting system;

[Fig. 16] A flowchart for explaining a processing in the sale/collecting system;

[Fig. 17] A flowchart showing a processing in a collecting system after arrival of the consumption

articles;

[Fig. 18A] A flowchart showing exceptional processing;

[Fig. 18B] A flowcharts showing exceptional processing;

[Fig. 19] A view showing a login screen of the sale/collecting system during a promotion term for the purpose of promotion of collecting specific consumption articles;

[Fig. 20] A view showing a table of relationship between a collecting rate and an incentive;

[Fig. 21] A view showing a table of relationship between quantity of orders accepted and a discount rate;

[Fig. 22] A view showing a table of relationship between the collecting rate and incentive during the promotion term;

[Fig. 23] A diagram for explaining a prediction sequence of the collecting and shipping;

[Fig. 24] A view showing a cartridge used in a printer;

[Fig. 25] A view showing data stored in a memory of the cartridge;

[Fig. 26] A schematic view showing a configuration of a laser beam printer; and

[Fig. 27] A schematic view showing a configuration of an inkjet printer.

[TYPE OF DOCUMENT] DRAWINGS

FIG. 1

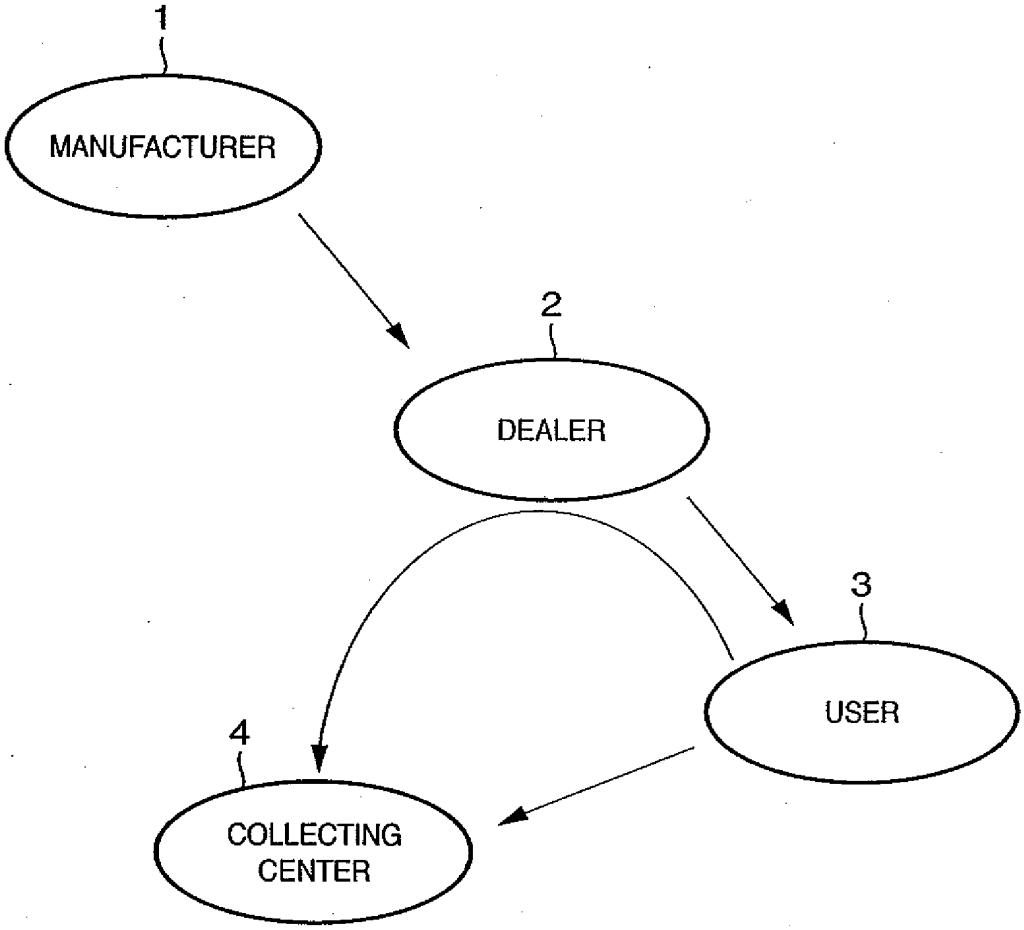


FIG. 2

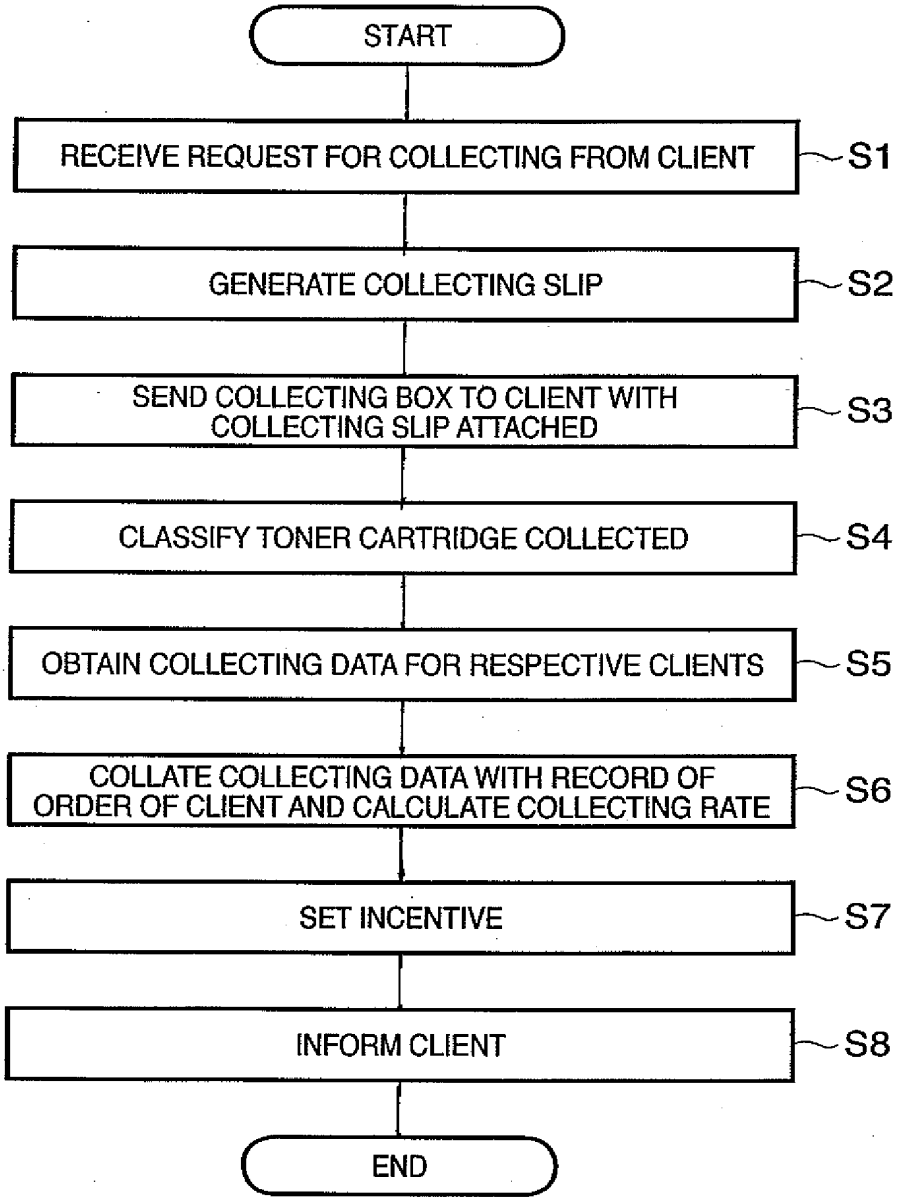

START
RECEIVE REQUEST FOR COLLECTING FROM CLIENT
S1
GENERATE COLLECTING SLIP
S2
SEND COLLECTING BOX TO CLIENT WITH COLLECTING SLIP ATTACHED
S3
CLASSIFY TONER CARTRIDGE COLLECTED
S4
OBTAIN COLLECTING DATA FOR RESPECTIVE CLIENTS
S5
COLLATE COLLECTING DATA WITH RECORD OF ORDER OF CLIENT AND CALCULATE COLLECTING RATE
S6
SET INCENTIVE
S7
INFORM CLIENT
S8
END

FIG. 3

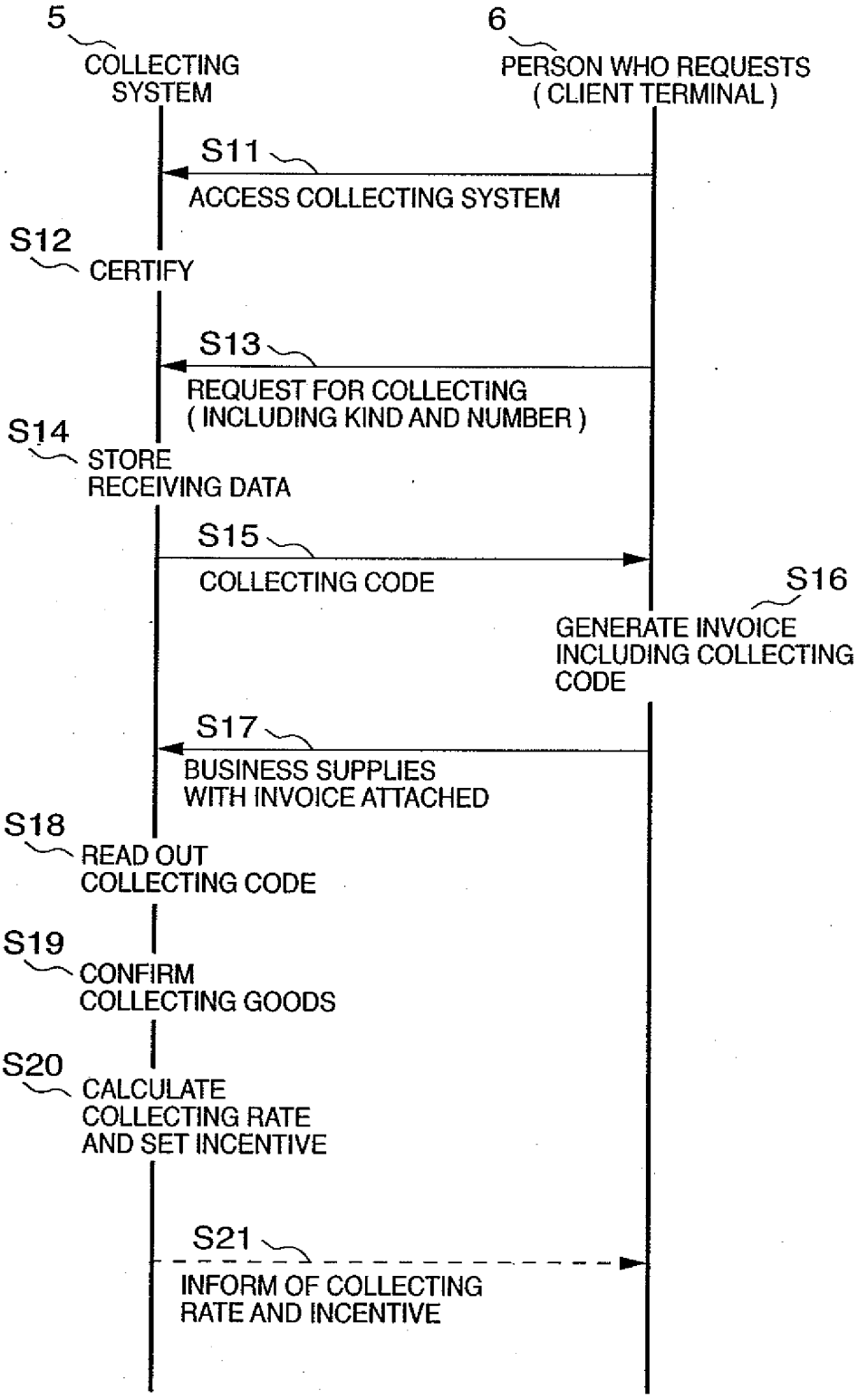

5
COLLECTING SYSTEM
6
PERSON WHO REQUESTS (CLIENT TERMINAL)
S11
ACCESS COLLECTING SYSTEM
S12
CERTIFY
S13
REQUEST FOR COLLECTING (INCLUDING KIND AND NUMBER)
S14
STORE RECEIVING DATA
S15
COLLECTING CODE
S16
GENERATE INVOICE INCLUDING COLLECTING CODE
S17
BUSINESS SUPPLIES WITH INVOICE ATTACHED
S18
READ OUT COLLECTING CODE
S19
CONFIRM COLLECTING GOODS
S20
CALCULATE COLLECTING RATE AND SET INCENTIVE
S21
INFORM OF COLLECTING RATE AND INCENTIVE

FIG. 4

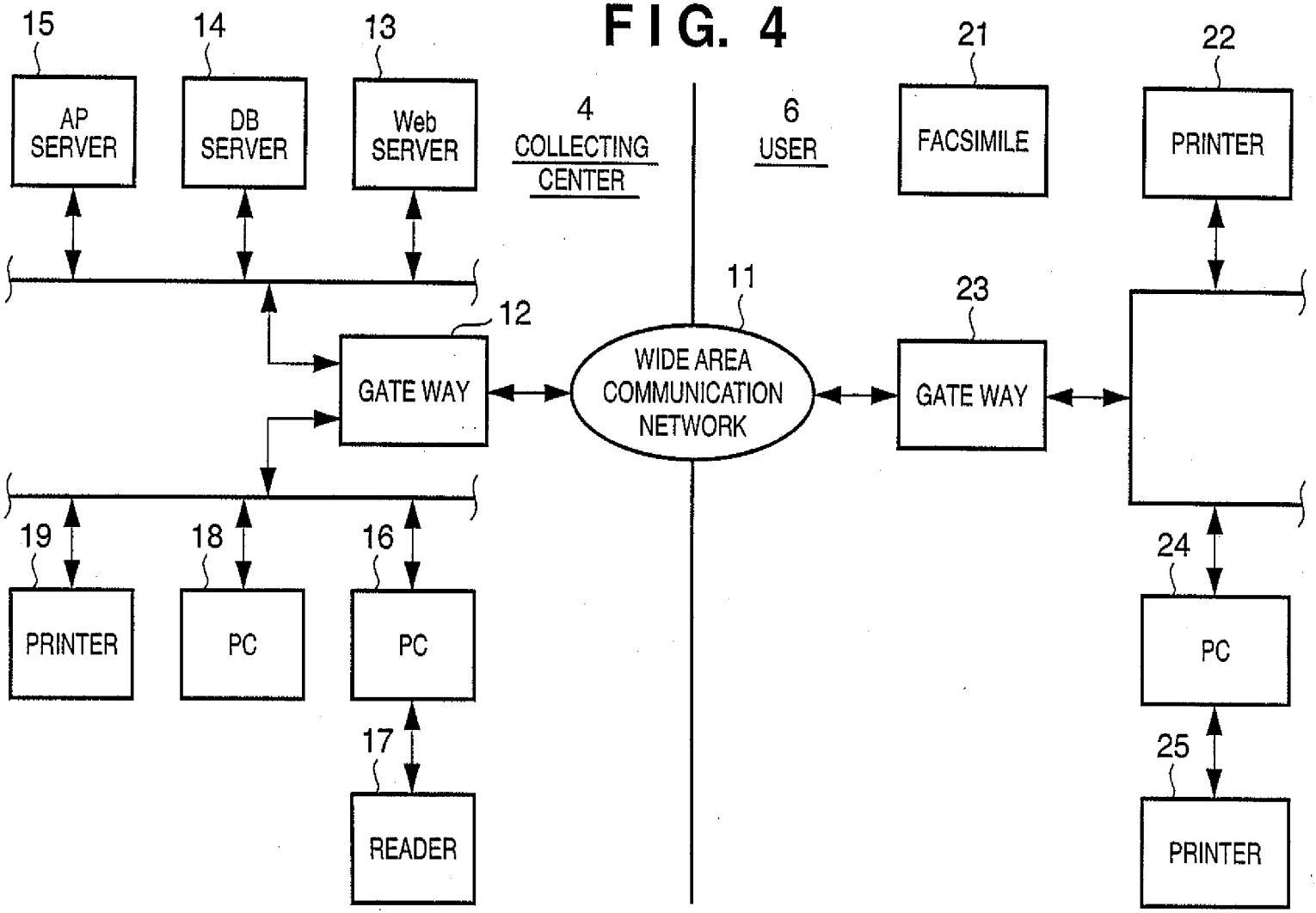

15
AP SERVER
14
DB SERVER
13
Web SERVER
4
COLLECTING CENTER
6
USER
21
FACSIMILE
22
PRINTER
11
12
GATE WAY
WIDE AREA COMMUNICATION NETWORK
23
GATE WAY
19
PRINTER
18
PC
16
PC
17
READER
24
PC
25
PRINTER

FIG. 5

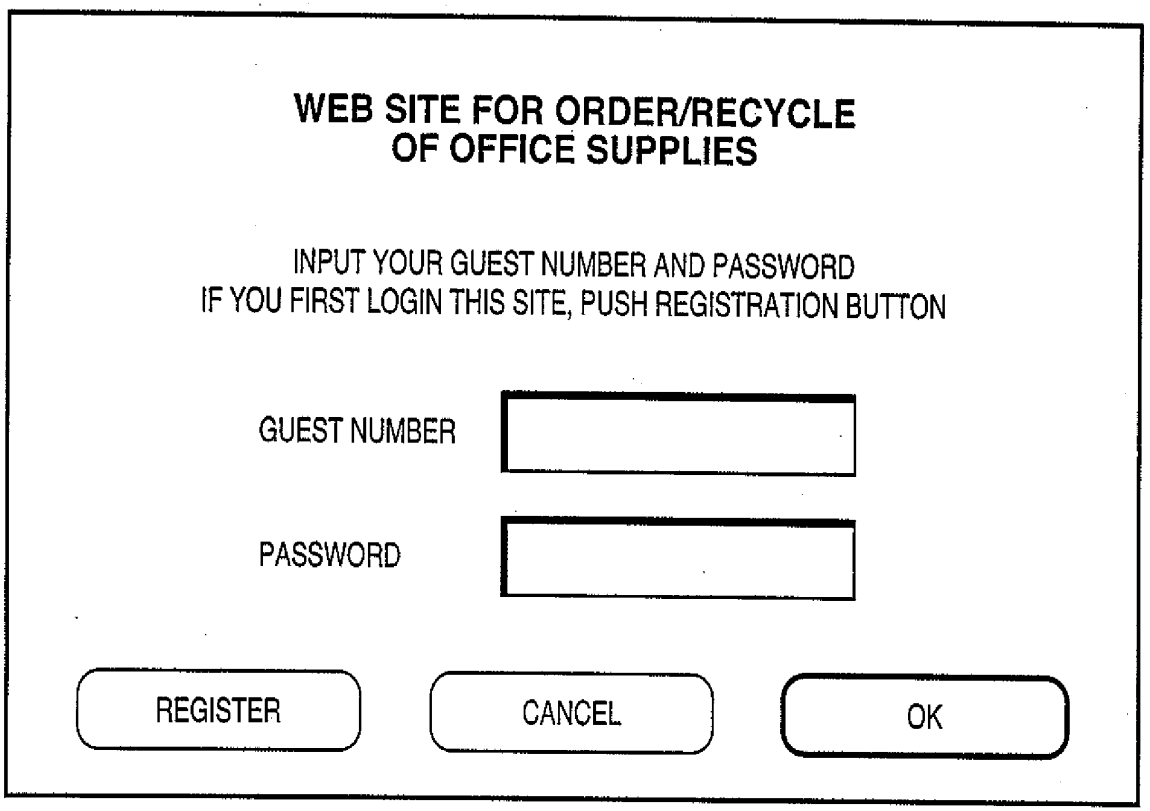

WEB SITE FOR ORDER/RECYCLE
OF OFFICE SUPPLIES
INPUT YOUR GUEST NUMBER AND PASSWORD
IF YOU FIRST LOGIN THIS SITE, PUSH REGISTRATION BUTTON
GUEST NUMBER
PASSWORD
REGISTER
CANCEL
OK

FIG. 6

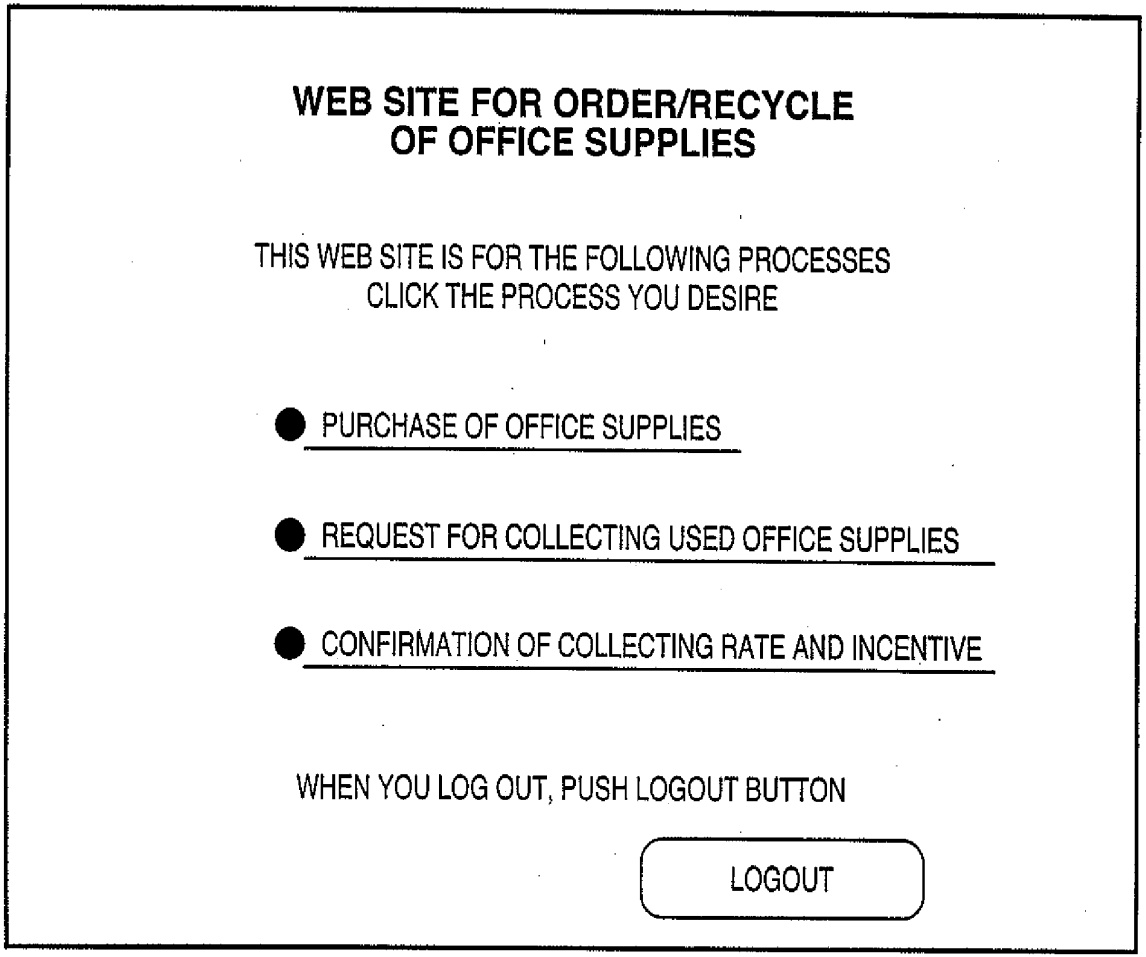

WEB SITE FOR ORDER/RECYCLE
OF OFFICE SUPPLIES
THIS WEB SITE IS FOR THE FOLLOWING PROCESSES
CLICK THE PROCESS YOU DESIRE
PURCHASE OF OFFICE SUPPLIES
REQUEST FOR COLLECTING USED OFFICE SUPPLIES
CONFIRMATION OF COLLECTING RATE AND INCENTIVE
WHEN YOU LOG OUT, PUSH LOGOUT BUTTON
LOGOUT

FIG. 7

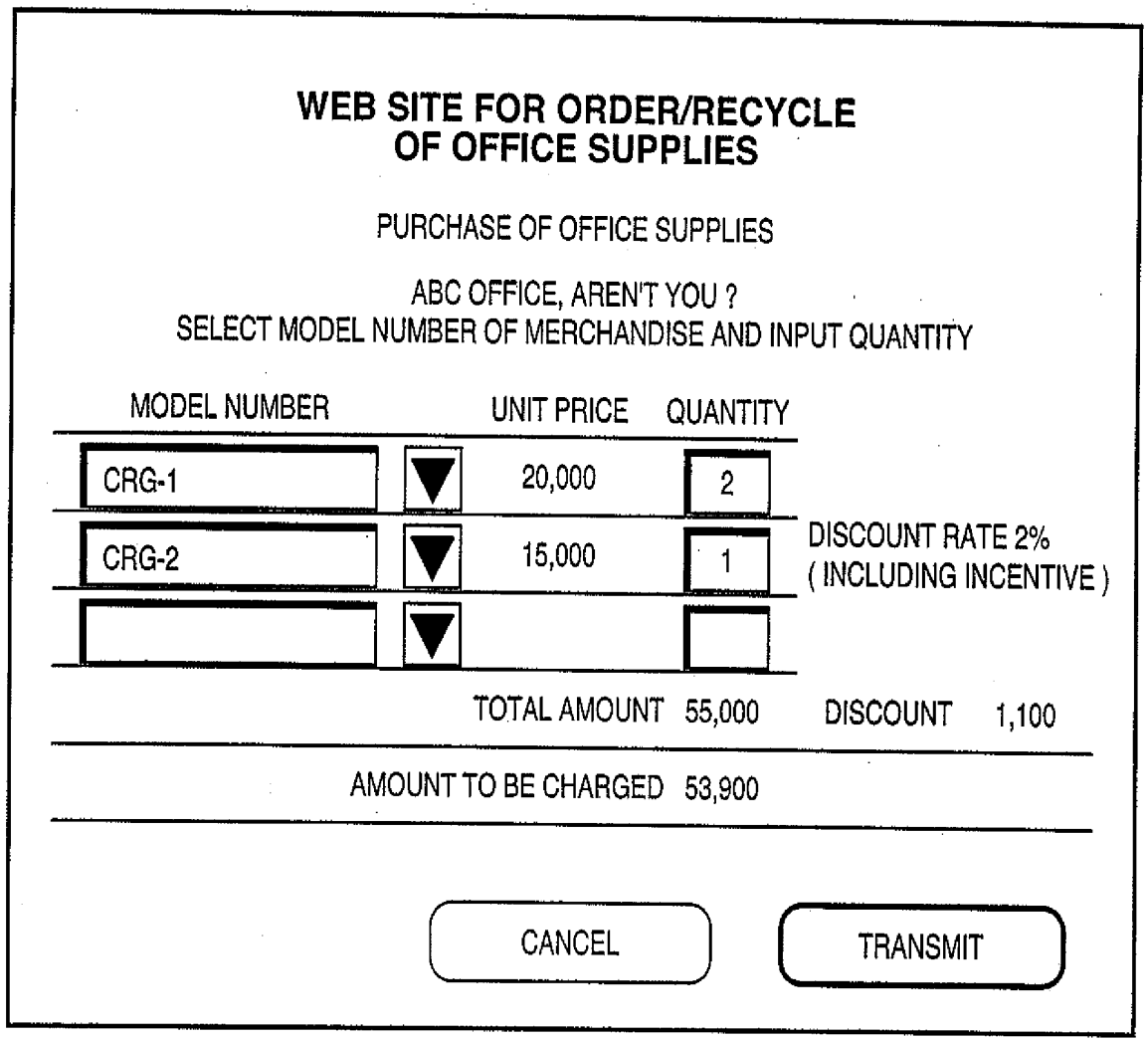

WEB SITE FOR ORDER/RECYCLE
OF OFFICE SUPPLIES
PURCHASE OF OFFICE SUPPLIES
ABC OFFICE, AREN'T YOU ?
SELECT MODEL NUMBER OF MERCHANDISE AND INPUT QUANTITY
MODEL NUMBER
UNIT PRICE
QUANTITY
CRG-1
20,000
2
CRG-2
15,000
1
DISCOUNT RATE 2%
(INCLUDING INCENTIVE)
TOTAL AMOUNT 55,000
DISCOUNT 1,100
AMOUNT TO BE CHARGED 53,900
CANCEL
TRANSMIT

FIG. 8

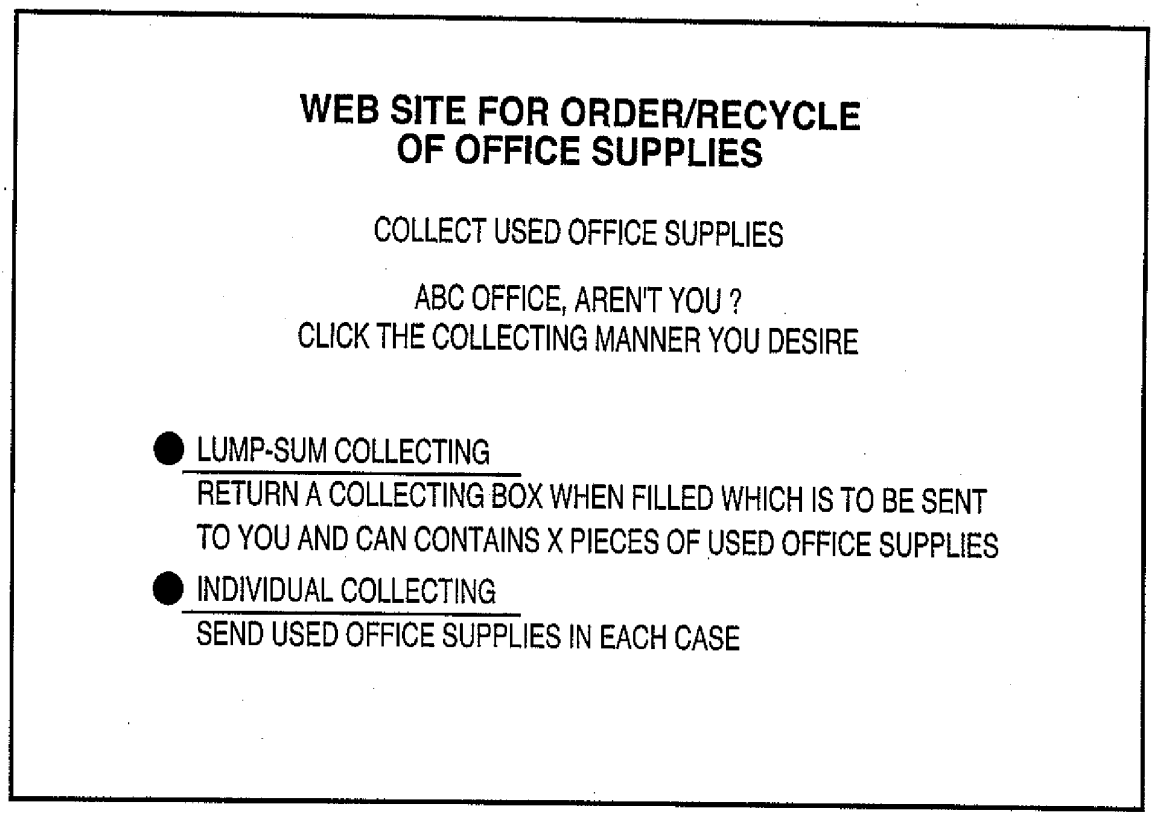

WEB SITE FOR ORDER/RECYCLE
OF OFFICE SUPPLIES
COLLECT USED OFFICE SUPPLIES
ABC OFFICE, AREN'T YOU ?
CLICK THE COLLECTING MANNER YOU DESIRE
LUMP-SUM COLLECTING
RETURN A COLLECTING BOX WHEN FILLED WHICH IS TO BE SENT
TO YOU AND CAN CONTAINS X PIECES OF USED OFFICE SUPPLIES
INDIVIDUAL COLLECTING
SEND USED OFFICE SUPPLIES IN EACH CASE

FIG. 9

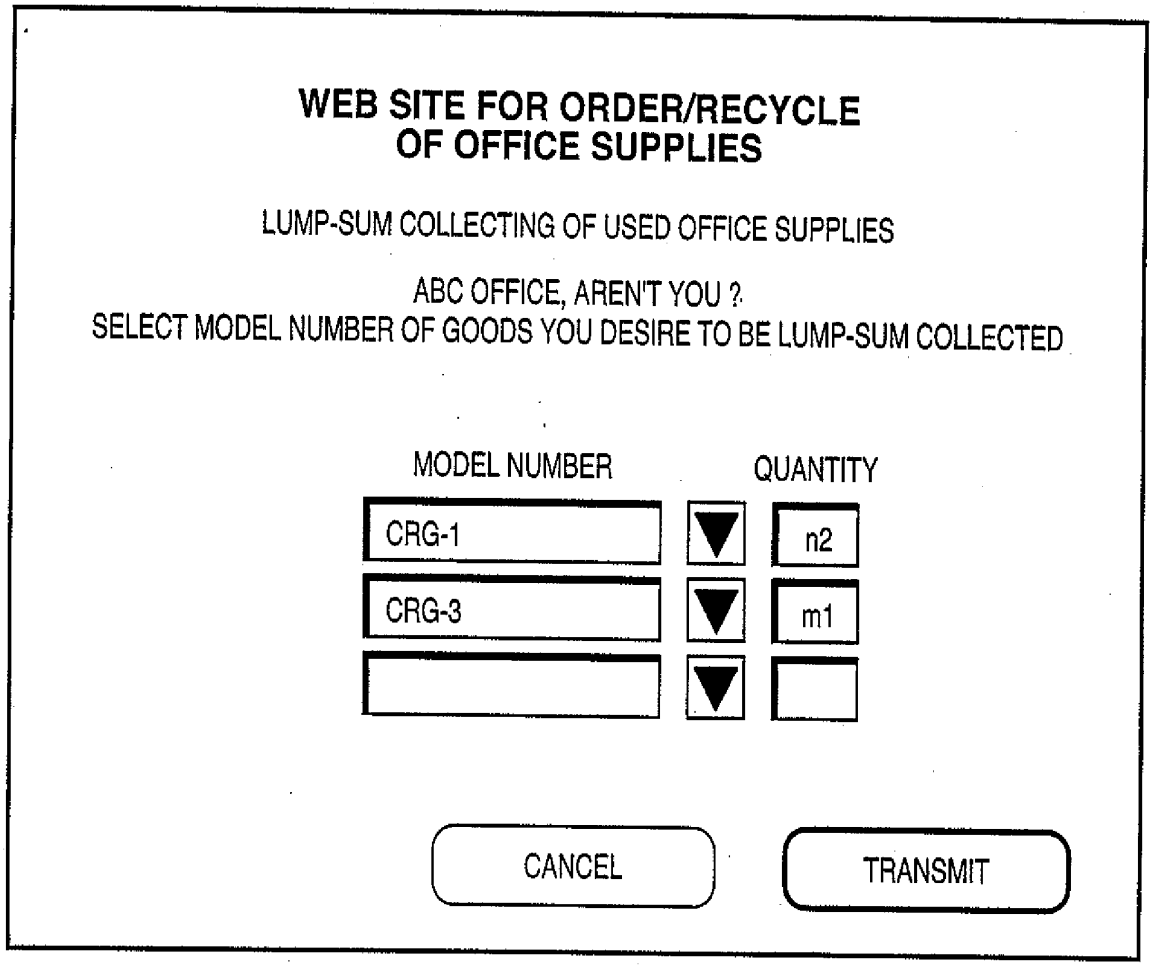

WEB SITE FOR ORDER/RECYCLE
OF OFFICE SUPPLIES
LUMP-SUM COLLECTING OF USED OFFICE SUPPLIES
ABC OFFICE, AREN'T YOU ?
SELECT MODEL NUMBER OF GOODS YOU DESIRE TO BE LUMP-SUM COLLECTED
MODEL NUMBER
QUANTITY
CRG-1
n2
CRG-3
m1
CANCEL
TRANSMIT

FIG. 10

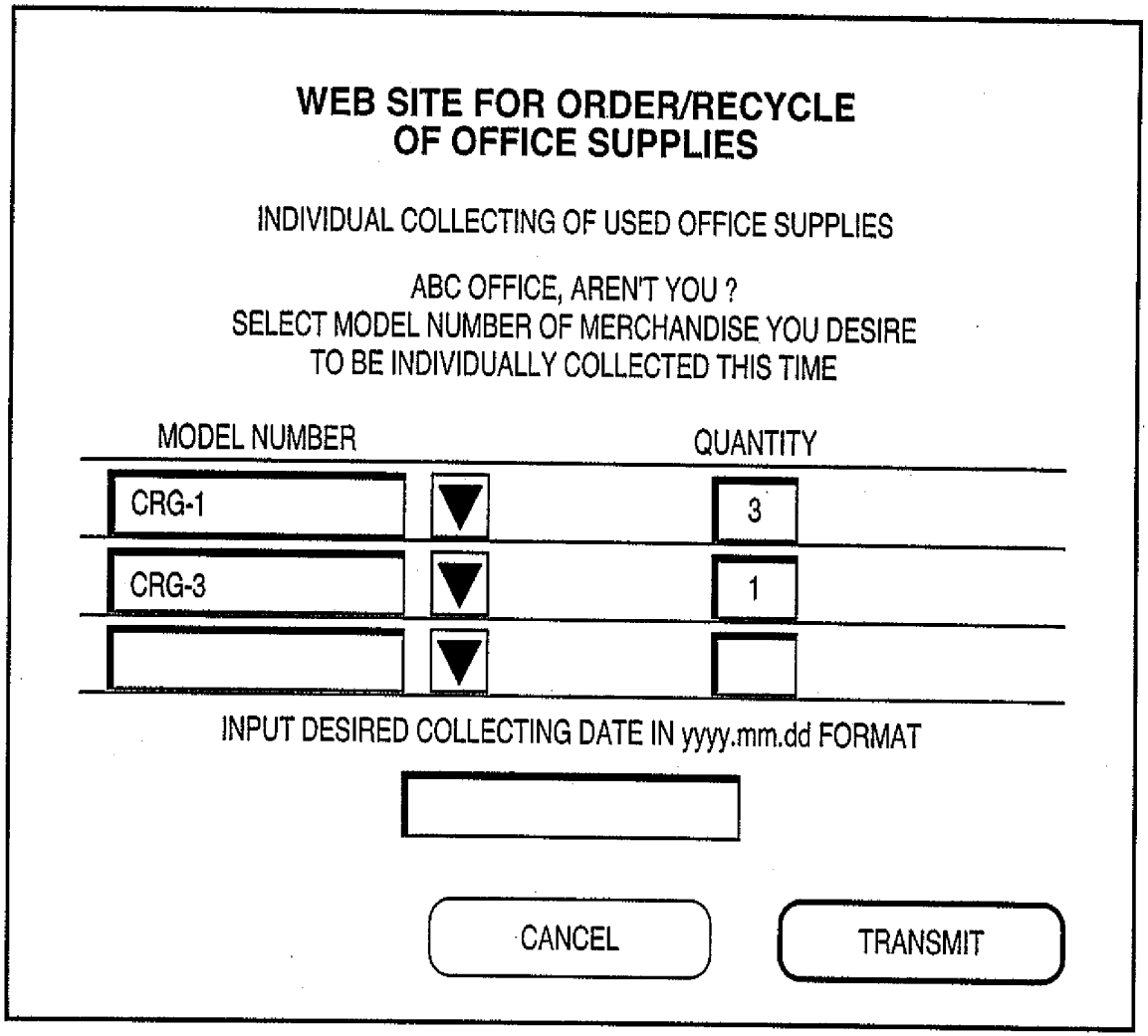

WEB SITE FOR ORDER/RECYCLE
OF OFFICE SUPPLIES
INDIVIDUAL COLLECTING OF USED OFFICE SUPPLIES
ABC OFFICE, AREN'T YOU ?
SELECT MODEL NUMBER OF MERCHANDISE YOU DESIRE
TO BE INDIVIDUALLY COLLECTED THIS TIME
MODEL NUMBER
QUANTITY
CRG-1
3
CRG-3
1
INPUT DESIRED COLLECTING DATE IN yyyy.mm.dd FORMAT
CANCEL
TRANSMIT

FIG. 11

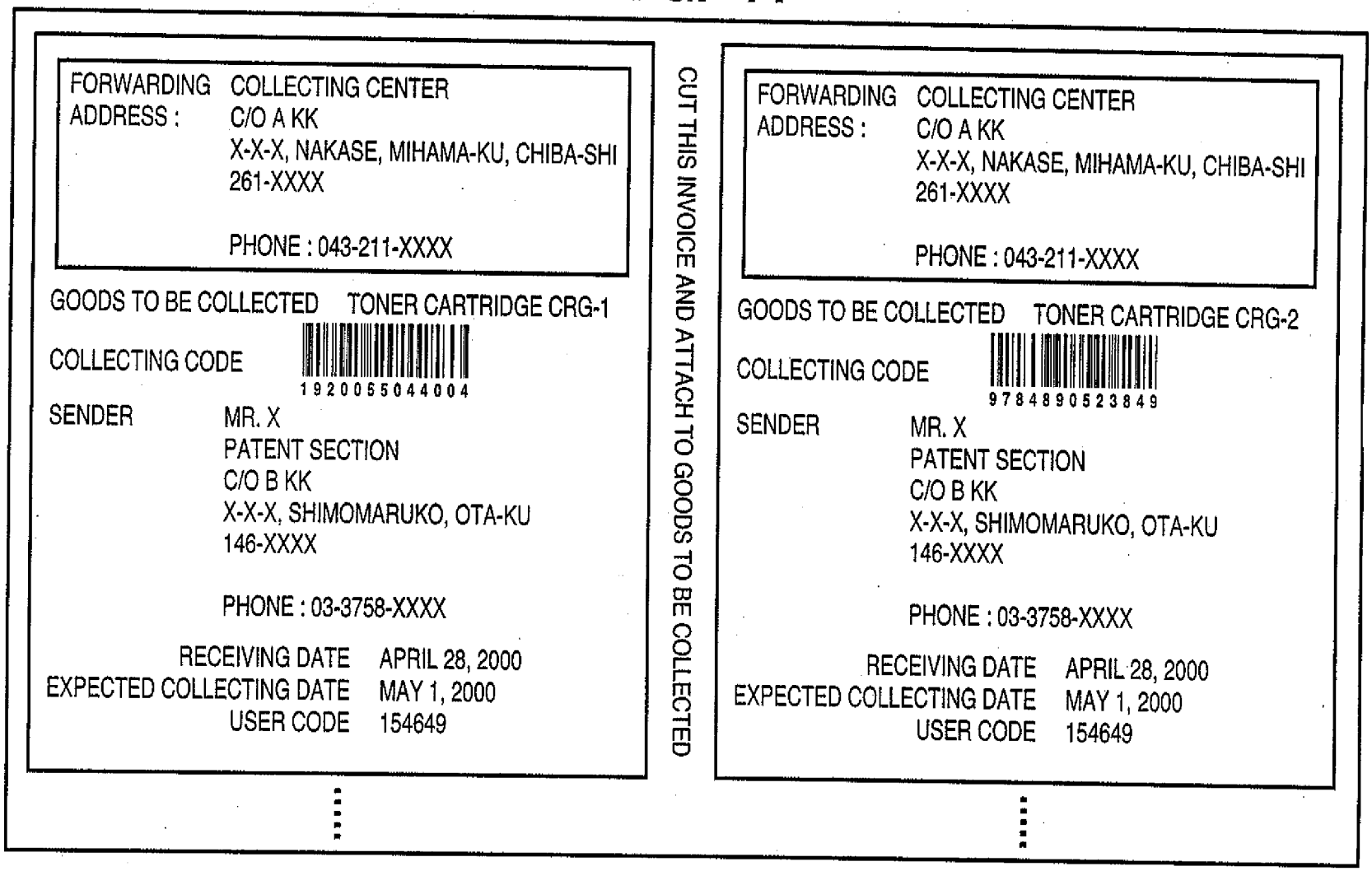

FORWARDING ADDRESS : COLLECTING CENTER
C/O A KK
X-X-X, NAKASE, MIHAMA-KU, CHIBA-SHI
261-XXXX
PHONE : 043-211-XXXX
GOODS TO BE COLLECTED TONER CARTRIDGE CRG-1
COLLECTING CODE
1920055044004
SENDER MR. X
PATENT SECTION
C/O B KK
X-X-X, SHIMOMARUKO, OTA-KU
146-XXXX
PHONE : 03-3758-XXXX
RECEIVING DATE APRIL 28, 2000
EXPECTED COLLECTING DATE MAY 1, 2000
USER CODE 154649
CUT THIS INVOICE AND ATTACH TO GOODS TO BE COLLECTED
FORWARDING ADDRESS : COLLECTING CENTER
C/O A KK
X-X-X, NAKASE, MIHAMA-KU, CHIBA-SHI
261-XXXX
PHONE : 043-211-XXXX
GOODS TO BE COLLECTED TONER CARTRIDGE CRG-2
COLLECTING CODE
9784890523849
SENDER MR. X
PATENT SECTION
C/O B KK
X-X-X, SHIMOMARUKO, OTA-KU
146-XXXX
PHONE : 03-3758-XXXX
RECEIVING DATE APRIL 28, 2000
EXPECTED COLLECTING DATE MAY 1, 2000
USER CODE 154649

FIG. 12

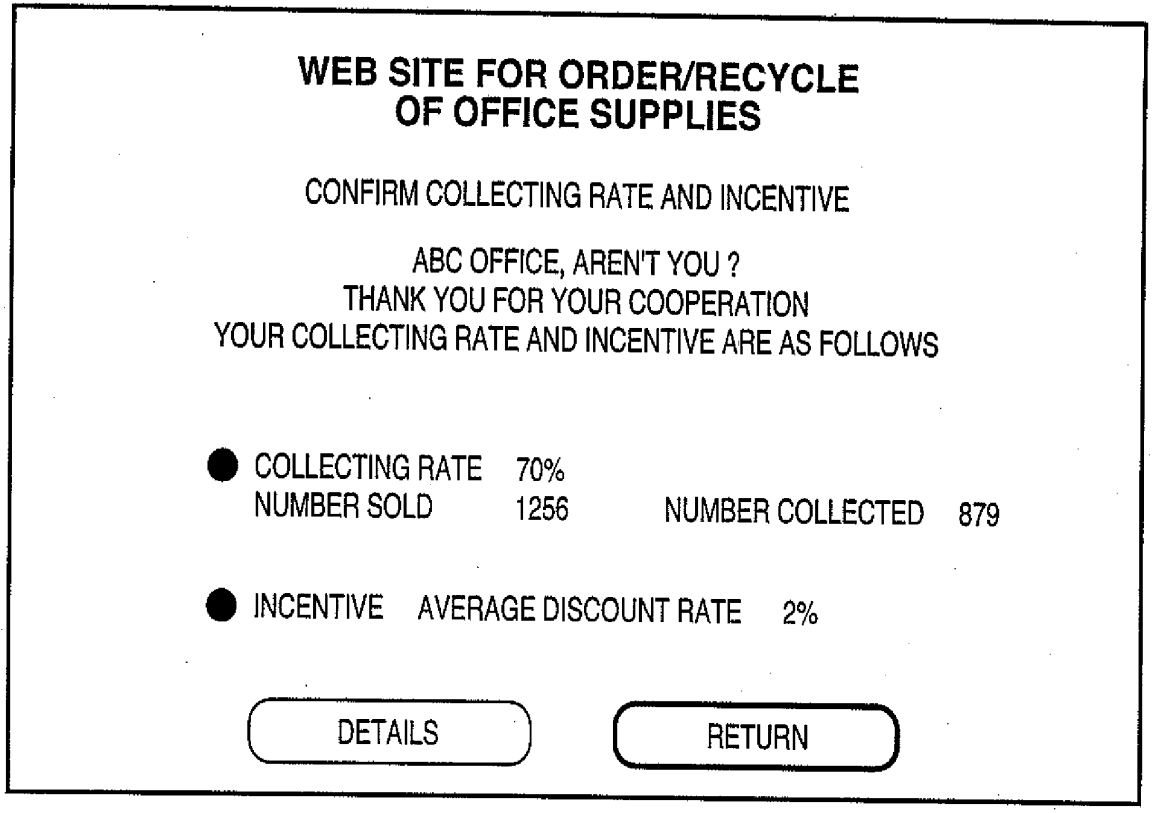

WEB SITE FOR ORDER/RECYCLE
OF OFFICE SUPPLIES
CONFIRM COLLECTING RATE AND INCENTIVE
ABC OFFICE, AREN'T YOU ?
THANK YOU FOR YOUR COOPERATION
YOUR COLLECTING RATE AND INCENTIVE ARE AS FOLLOWS
COLLECTING RATE 70%
NUMBER SOLD 1256
NUMBER COLLECTED 879
INCENTIVE AVERAGE DISCOUNT RATE 2%
DETAILS
RETURN

FIG. 13

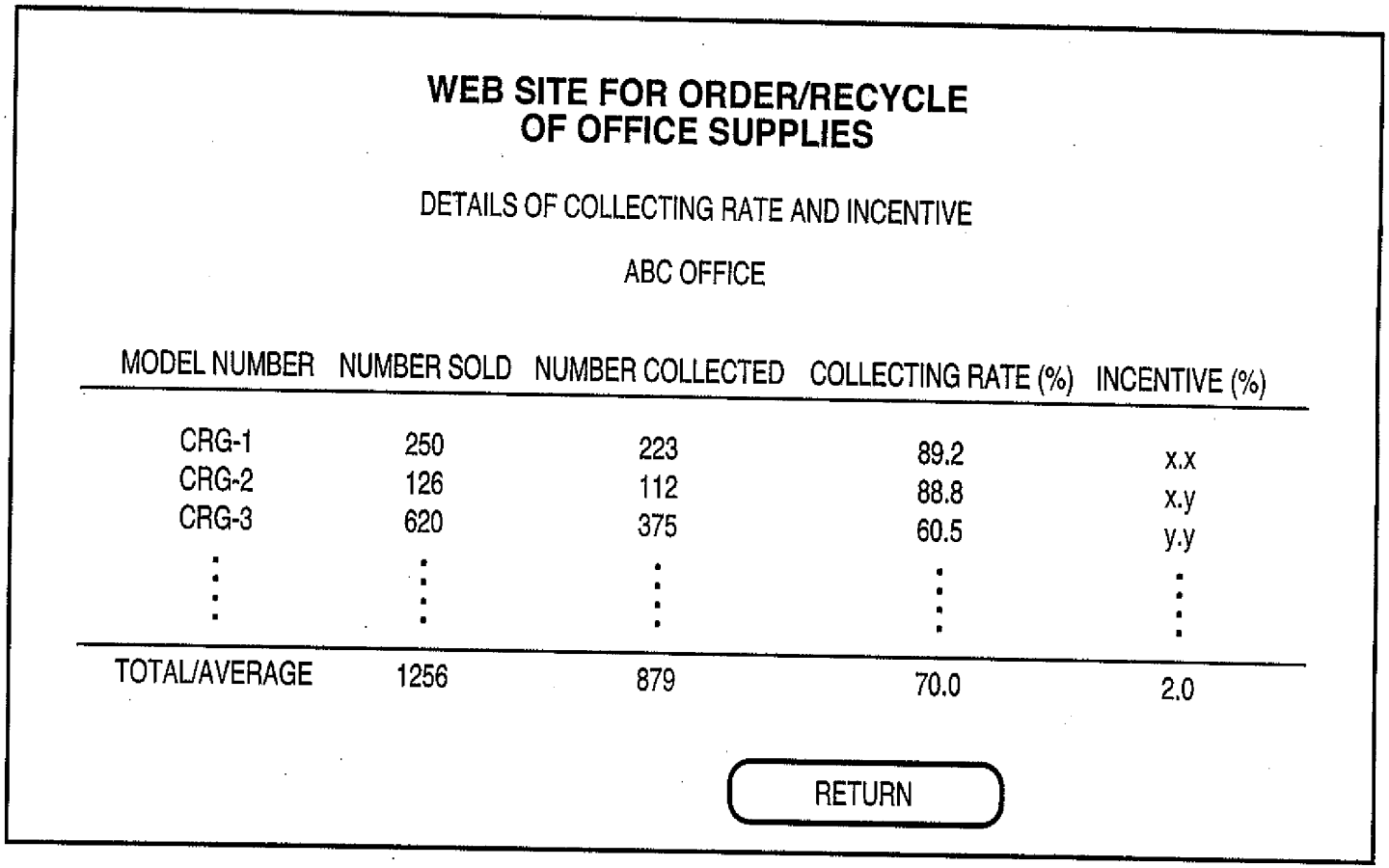

WEB SITE FOR ORDER/RECYCLE OF OFFICE SUPPLIES
DETAILS OF COLLECTING RATE AND INCENTIVE
ABC OFFICE
MODEL NUMBER
NUMBER SOLD
NUMBER COLLECTED
COLLECTING RATE (%)
INCENTIVE (%)
CRG-1
CRG-2
CRG-3
250
126
620
223
112
375
89.2
88.8
60.5
x.x
x.y
y.y
TOTAL/AVERAGE
1256
879
70.0
2.0
RETURN

FIG. 14

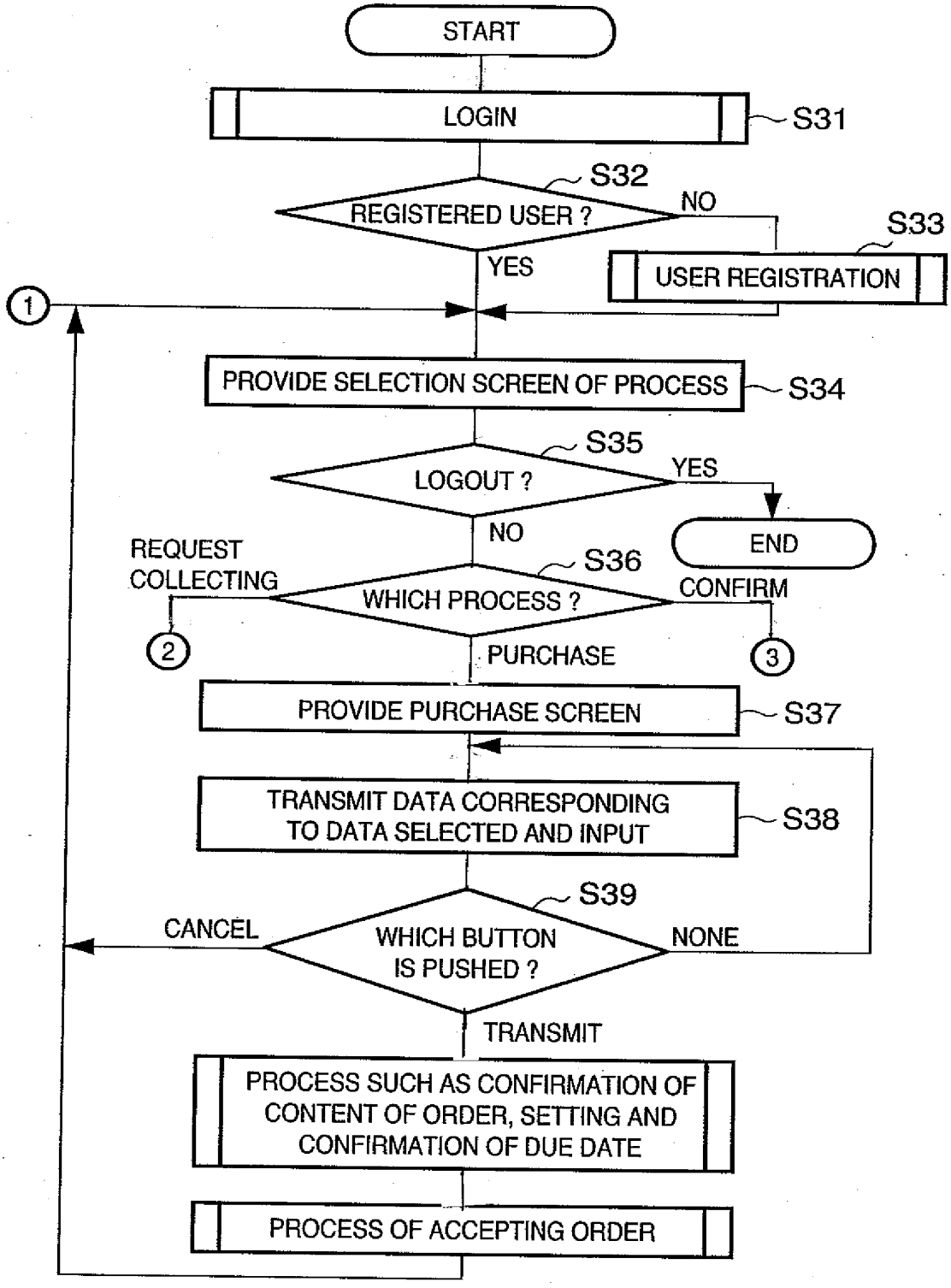

START
LOGIN
S31
S32
REGISTERED USER ?
NO
S33
USER REGISTRATION
YES
1
PROVIDE SELECTION SCREEN OF PROCESS
S34
S35
LOGOUT ?
YES
END
NO
REQUEST COLLECTING
S36
WHICH PROCESS ?
CONFIRM
2
3
PURCHASE
PROVIDE PURCHASE SCREEN
S37
TRANSMIT DATA CORRESPONDING TO DATA SELECTED AND INPUT
S38
S39
CANCEL
WHICH BUTTON IS PUSHED ?
NONE
TRANSMIT
PROCESS SUCH AS CONFIRMATION OF CONTENT OF ORDER, SETTING AND CONFIRMATION OF DUE DATE
PROCESS OF ACCEPTING ORDER

FIG. 15

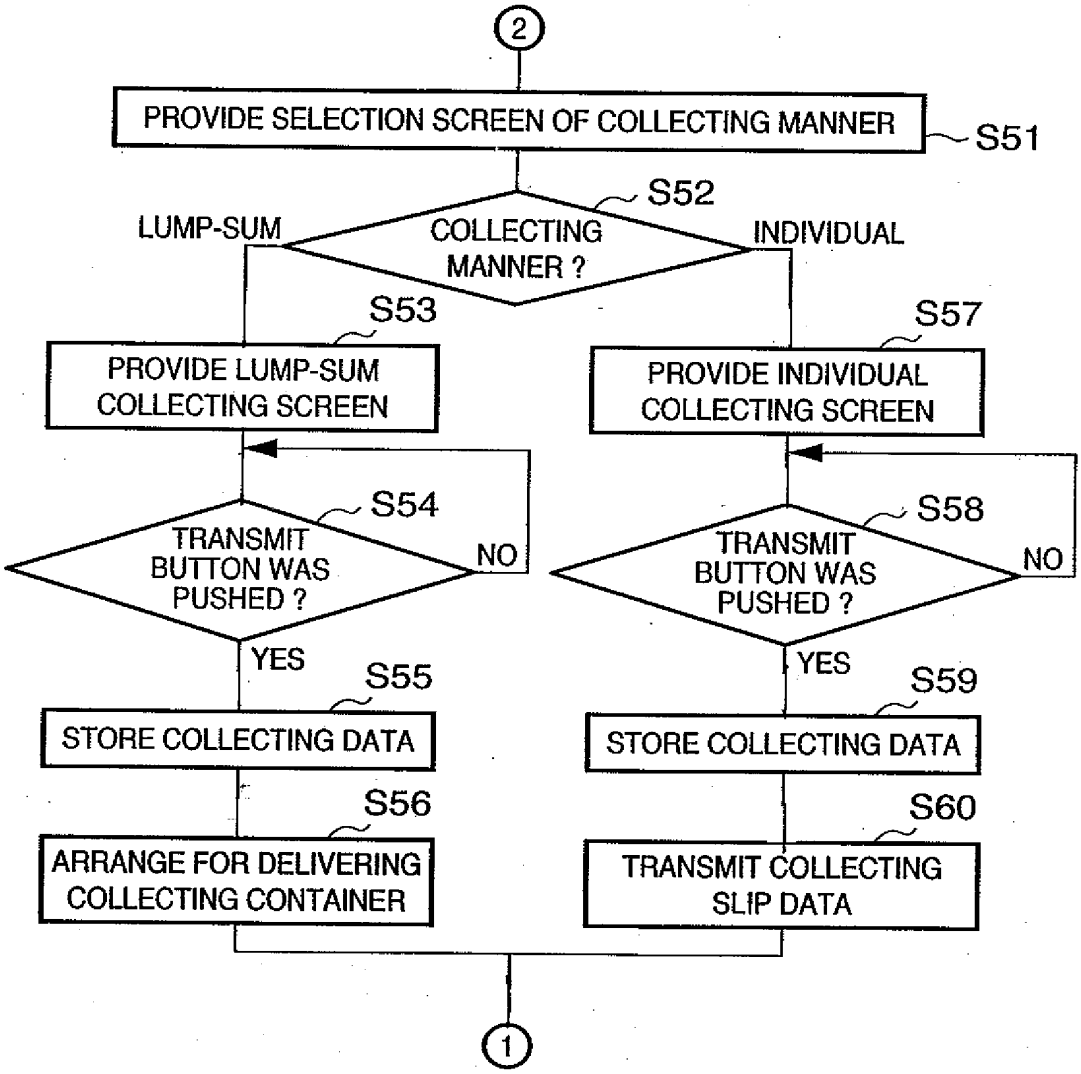

2
PROVIDE SELECTION SCREEN OF COLLECTING MANNER
S51
S52
LUMP-SUM
COLLECTING MANNER ?
INDIVIDUAL
S53
PROVIDE LUMP-SUM COLLECTING SCREEN
S57
PROVIDE INDIVIDUAL COLLECTING SCREEN
S54
TRANSMIT BUTTON WAS PUSHED ?
NO
YES
S58
TRANSMIT BUTTON WAS PUSHED ?
NO
YES
S55
STORE COLLECTING DATA
S59
STORE COLLECTING DATA
S56
ARRANGE FOR DELIVERING COLLECTING CONTAINER
S60
TRANSMIT COLLECTING SLIP DATA
1

FIG. 16

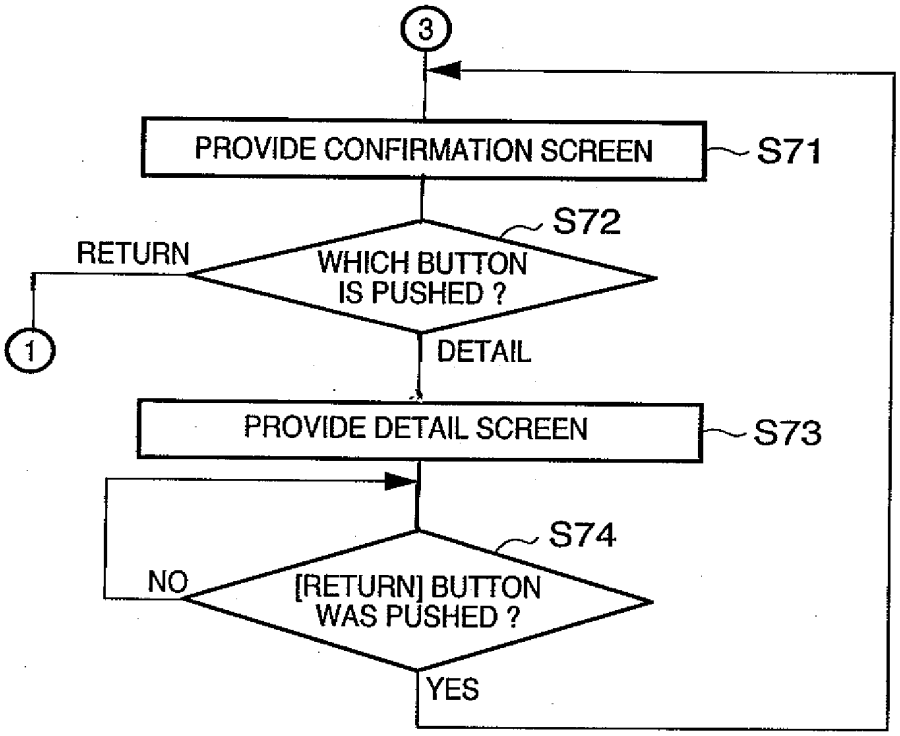

3
PROVIDE CONFIRMATION SCREEN
S71
S72
WHICH BUTTON IS PUSHED ?
RETURN
1
DETAIL
PROVIDE DETAIL SCREEN
S73
S74
[RETURN] BUTTON WAS PUSHED ?
NO
YES

FIG. 17

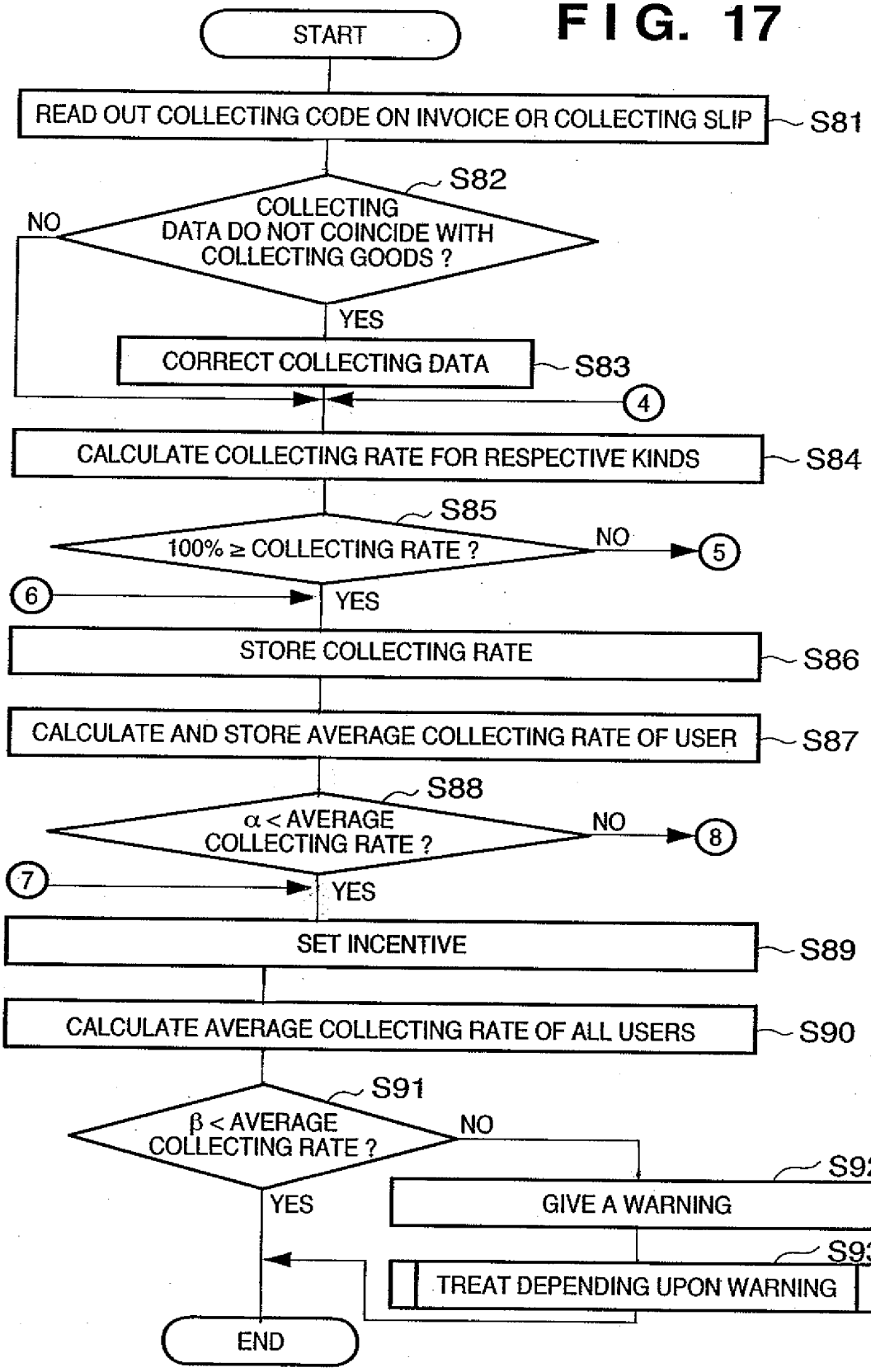

START
READ OUT COLLECTING CODE ON INVOICE OR COLLECTING SLIP
S81
S82
COLLECTING DATA DO NOT COINCIDE WITH COLLECTING GOODS ?
NO
YES
CORRECT COLLECTING DATA
S83
4
CALCULATE COLLECTING RATE FOR RESPECTIVE KINDS
S84
S85
100% ≥ COLLECTING RATE ?
NO
5
6
YES
STORE COLLECTING RATE
S86
CALCULATE AND STORE AVERAGE COLLECTING RATE OF USER
S87
S88
α < AVERAGE COLLECTING RATE ?
NO
8
7
YES
SET INCENTIVE
S89
CALCULATE AVERAGE COLLECTING RATE OF ALL USERS
S90
S91
β < AVERAGE COLLECTING RATE ?
NO
YES
S92
GIVE A WARNING
S93
TREAT DEPENDING UPON WARNING
END

FIG. 18A

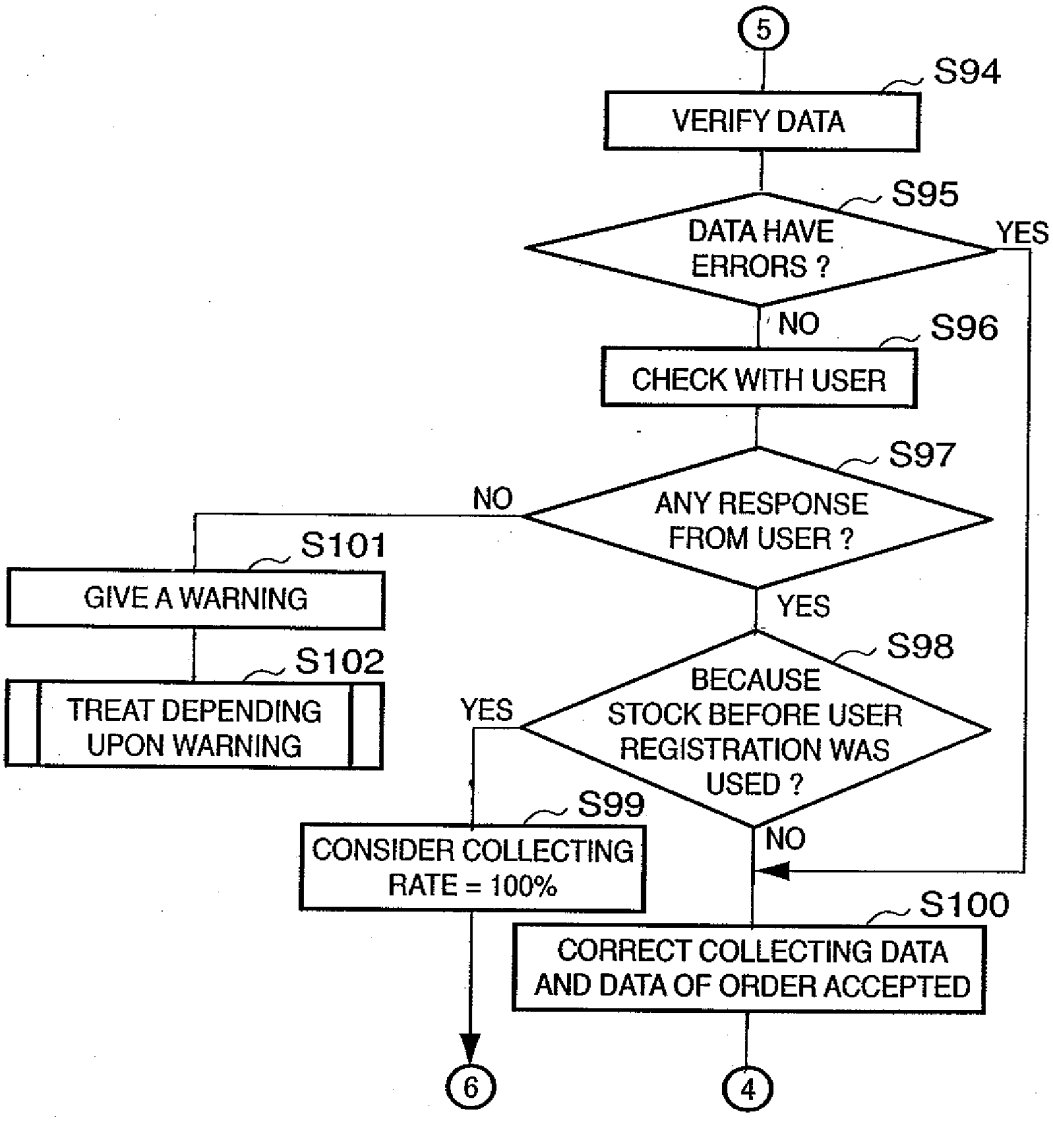

5
S94
VERIFY DATA
S95
DATA HAVE ERRORS ?
YES
NO
S96
CHECK WITH USER
S97
ANY RESPONSE FROM USER ?
NO
YES
S101
GIVE A WARNING
S102
TREAT DEPENDING UPON WARNING
S98
BECAUSE STOCK BEFORE USER REGISTRATION WAS USED ?
YES
NO
S99
CONSIDER COLLECTING RATE = 100%
S100
CORRECT COLLECTING DATA AND DATA OF ORDER ACCEPTED
6
4

FIG. 18B

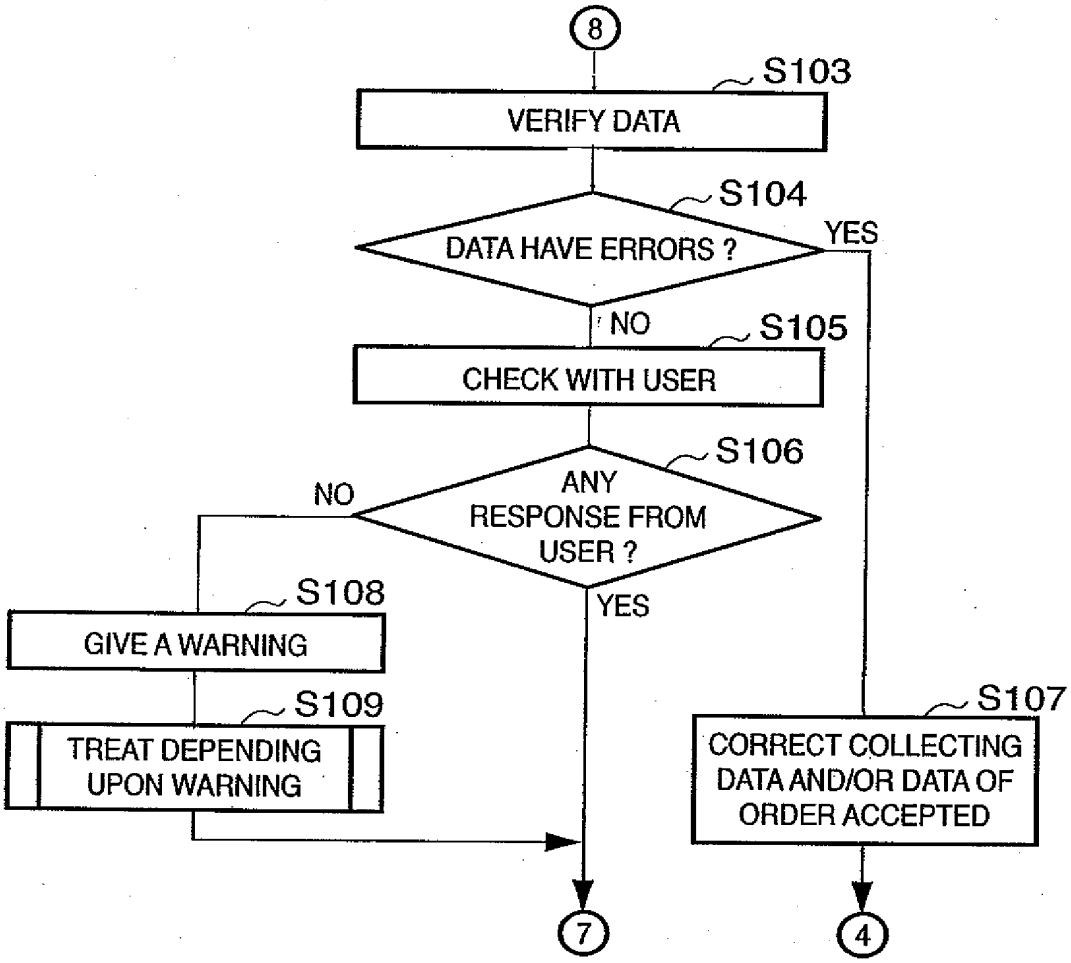

8
S103
VERIFY DATA
S104
DATA HAVE ERRORS ?
YES
NO
S105
CHECK WITH USER
S106
ANY RESPONSE FROM USER ?
NO
YES
S108
GIVE A WARNING
S109
TREAT DEPENDING UPON WARNING
S107
CORRECT COLLECTING DATA AND/OR DATA OF ORDER ACCEPTED
7
4

FIG. 19

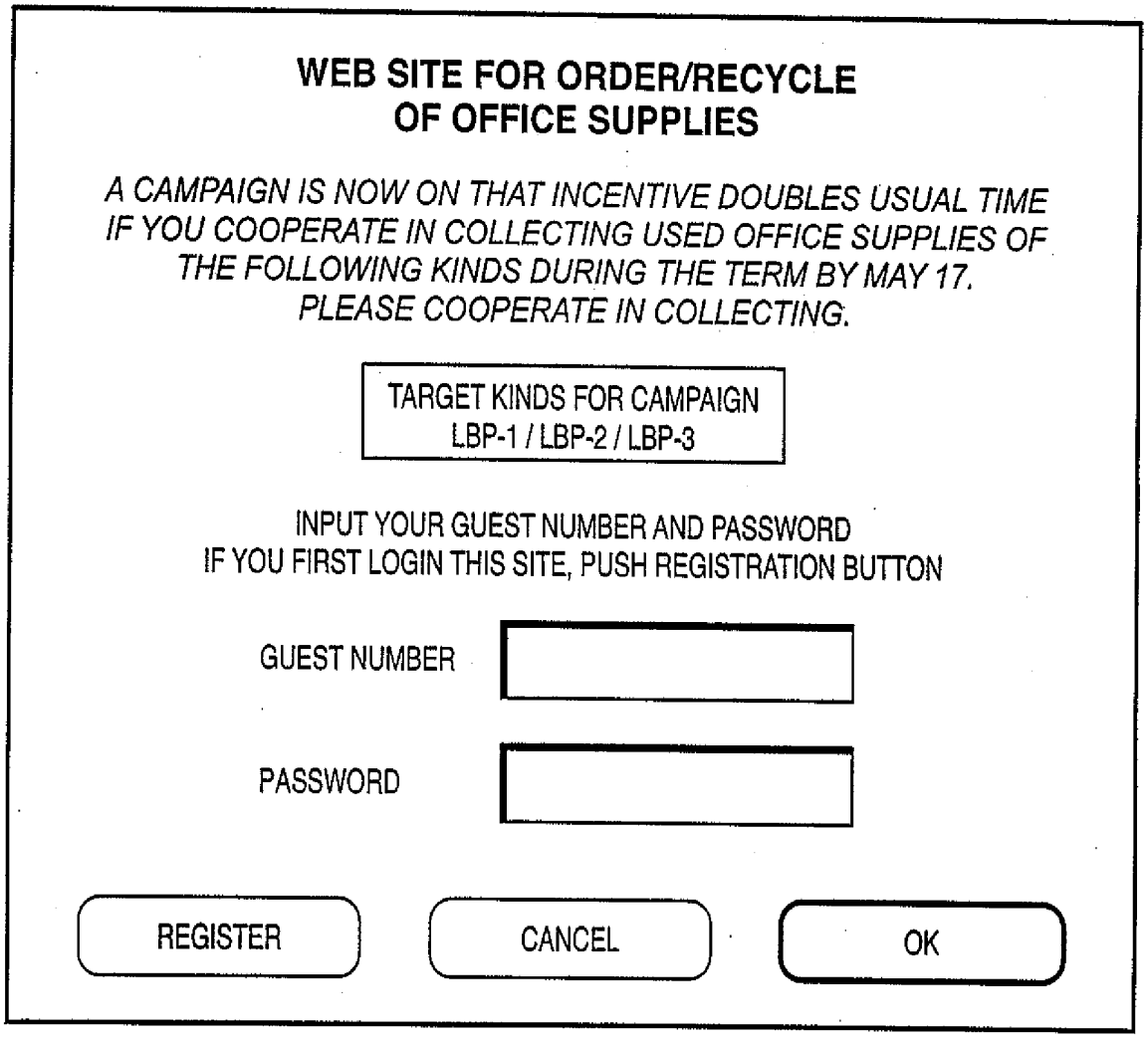

WEB SITE FOR ORDER/RECYCLE
OF OFFICE SUPPLIES
A CAMPAIGN IS NOW ON THAT INCENTIVE DOUBLES USUAL TIME
IF YOU COOPERATE IN COLLECTING USED OFFICE SUPPLIES OF
THE FOLLOWING KINDS DURING THE TERM BY MAY 17.
PLEASE COOPERATE IN COLLECTING.
TARGET KINDS FOR CAMPAIGN
LBP-1 / LBP-2 / LBP-3
INPUT YOUR GUEST NUMBER AND PASSWORD
IF YOU FIRST LOGIN THIS SITE, PUSH REGISTRATION BUTTON
GUEST NUMBER
PASSWORD
REGISTER
CANCEL
OK

FIG. 20

KIND \ COLLECTING RATE (%)	0~10	~30	~50		~100
CRG A	0%	-1%	-1%		-3%
CRG B	0%	-0.5%	-1%		-1.5%
CRG C	0%	-2%	-3%		-5%
CRG D	0%	-1%	-1%		-3%
⋮	⋮	⋮	⋮		⋮

FIG. 21

QUANTITY OF ORDER ACCEPTED / KIND	1～3	4～10	11～25		1001～
CRG A	−1%	−1.5%	−2%		−30%
CRG B	−0.5%	−0.5%	−1%		−25%
CRG C	−1%	−2%	−3%		−35%
CRG D	−1%	−1.5%	−1.5%		−30%
⋮	⋮	⋮	⋮		⋮

FIG. 22

KIND \ COLLECTING RATE (%)	0～10	～30	～50		～100
CRG A	0%	−2%	−2%		−6%
CRG B	0%	−0.5%	−1%		−1.5%
CRG C	0%	−2%	−4%		−10%
CRG D	0%	−1%	−1%		−3%
⋮	⋮	⋮	⋮		⋮

FIG. 23

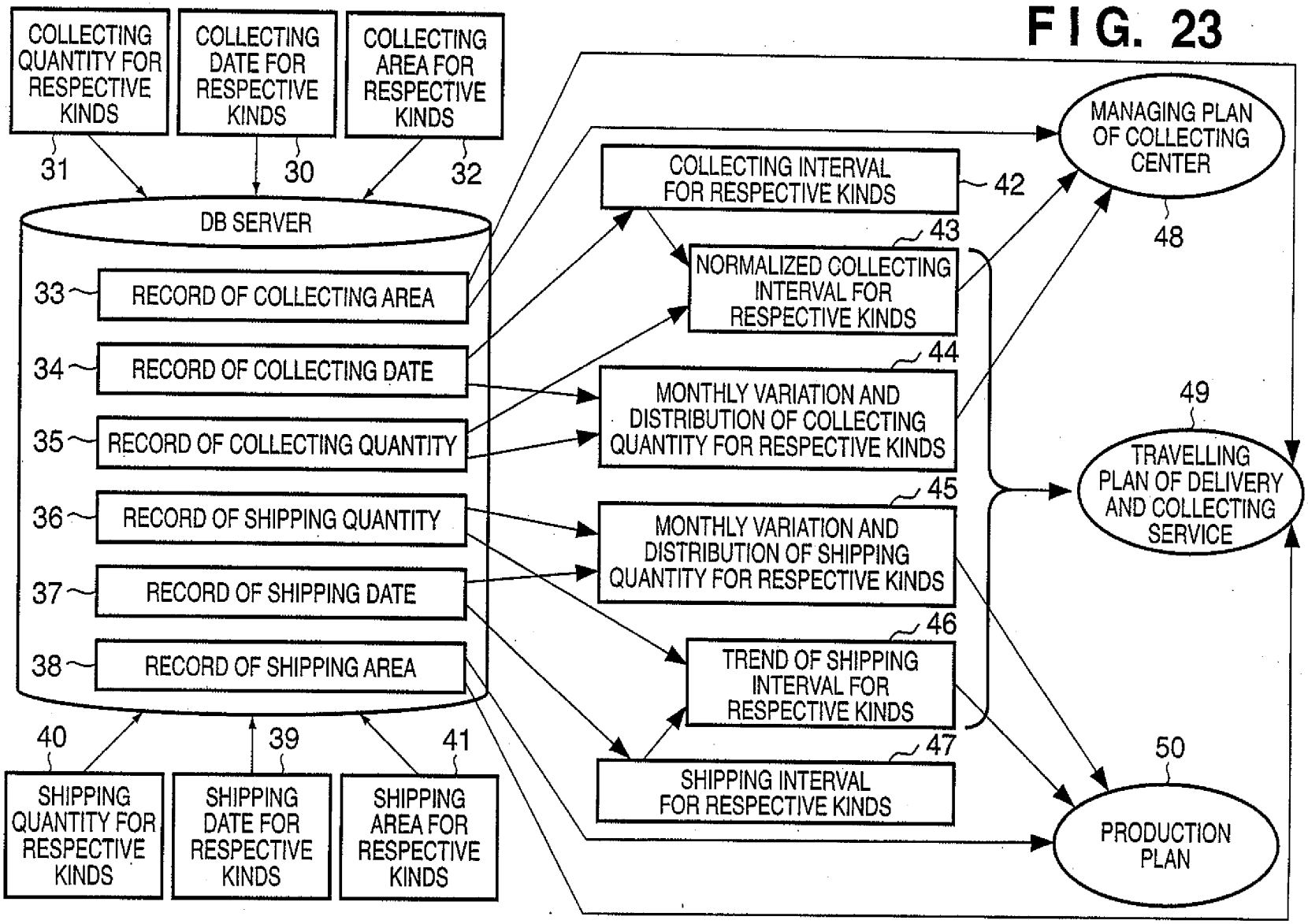

COLLECTING QUANTITY FOR RESPECTIVE KINDS
COLLECTING DATE FOR RESPECTIVE KINDS
COLLECTING AREA FOR RESPECTIVE KINDS
31
30
32
DB SERVER
33
RECORD OF COLLECTING AREA
34
RECORD OF COLLECTING DATE
35
RECORD OF COLLECTING QUANTITY
36
RECORD OF SHIPPING QUANTITY
37
RECORD OF SHIPPING DATE
38
RECORD OF SHIPPING AREA
40
39
41
SHIPPING QUANTITY FOR RESPECTIVE KINDS
SHIPPING DATE FOR RESPECTIVE KINDS
SHIPPING AREA FOR RESPECTIVE KINDS
COLLECTING INTERVAL FOR RESPECTIVE KINDS
42
43
NORMALIZED COLLECTING INTERVAL FOR RESPECTIVE KINDS
44
MONTHLY VARIATION AND DISTRIBUTION OF COLLECTING QUANTITY FOR RESPECTIVE KINDS
45
MONTHLY VARIATION AND DISTRIBUTION OF SHIPPING QUANTITY FOR RESPECTIVE KINDS
46
TREND OF SHIPPING INTERVAL FOR RESPECTIVE KINDS
47
SHIPPING INTERVAL FOR RESPECTIVE KINDS
MANAGING PLAN OF COLLECTING CENTER
48
49
TRAVELLING PLAN OF DELIVERY AND COLLECTING SERVICE
50
PRODUCTION PLAN

FIG. 24

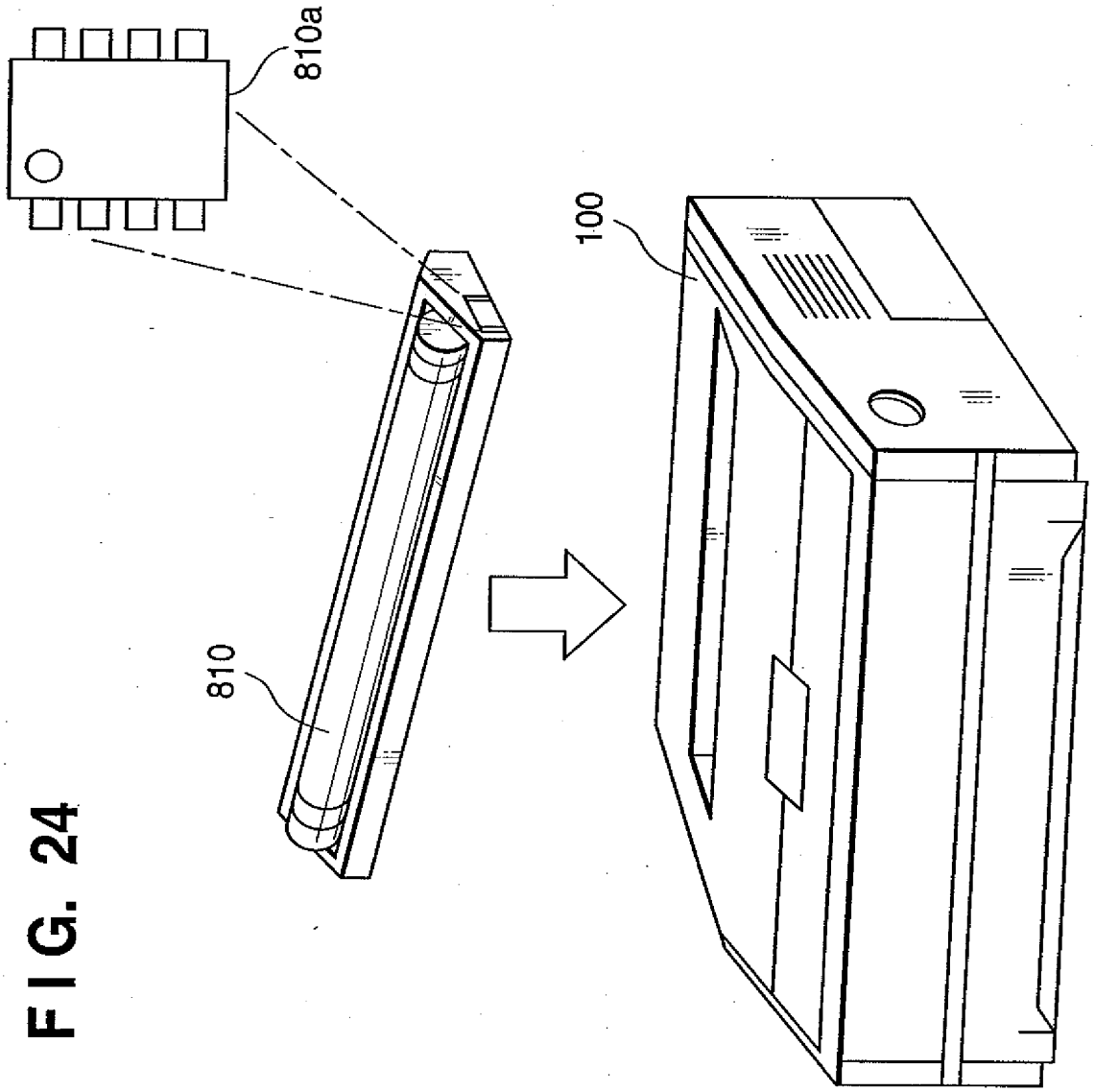


FIG. 25

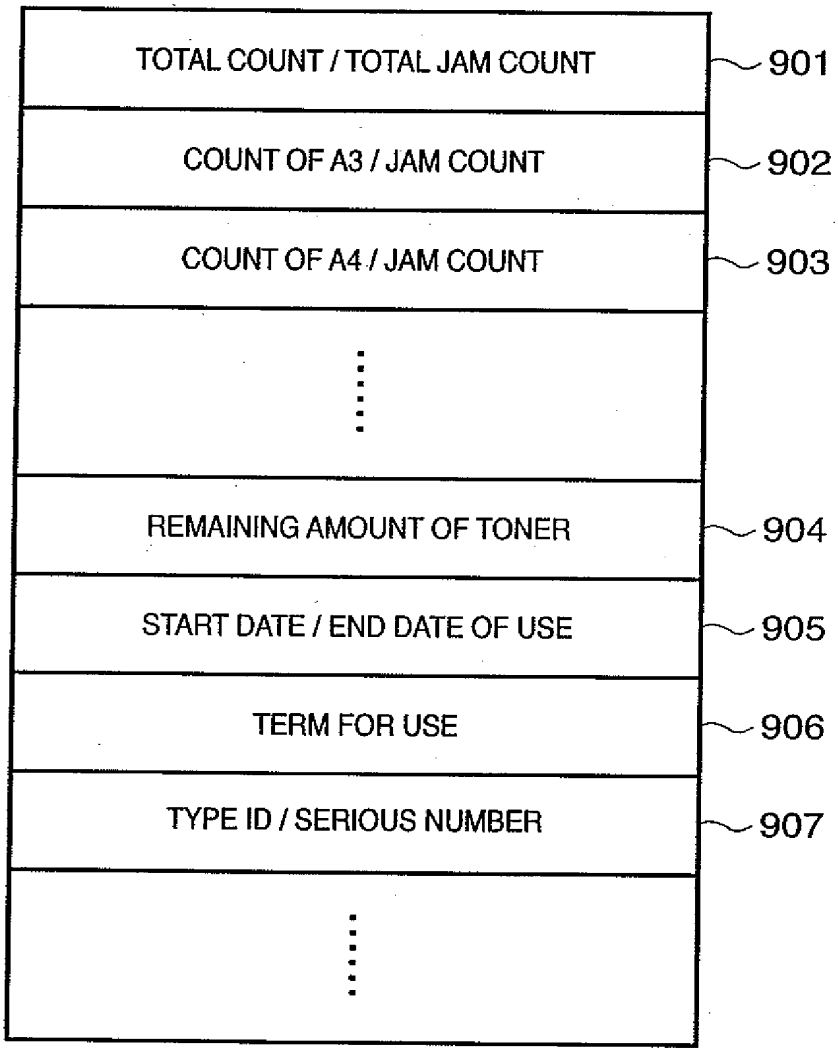

TOTAL COUNT / TOTAL JAM COUNT
901
COUNT OF A3 / JAM COUNT
902
COUNT OF A4 / JAM COUNT
903
REMAINING AMOUNT OF TONER
904
START DATE / END DATE OF USE
905
TERM FOR USE
906
TYPE ID / SERIOUS NUMBER
907

FIG. 26

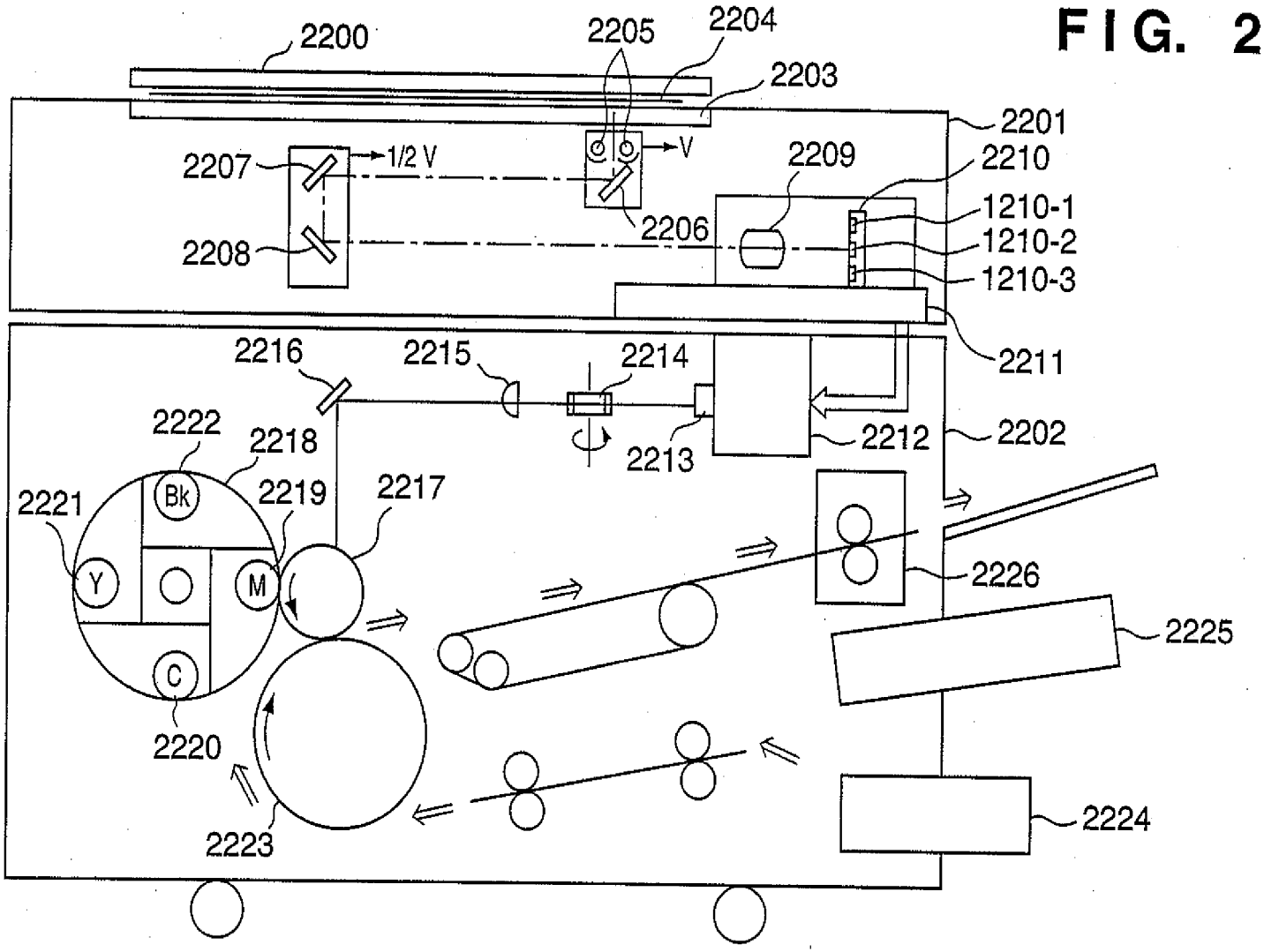
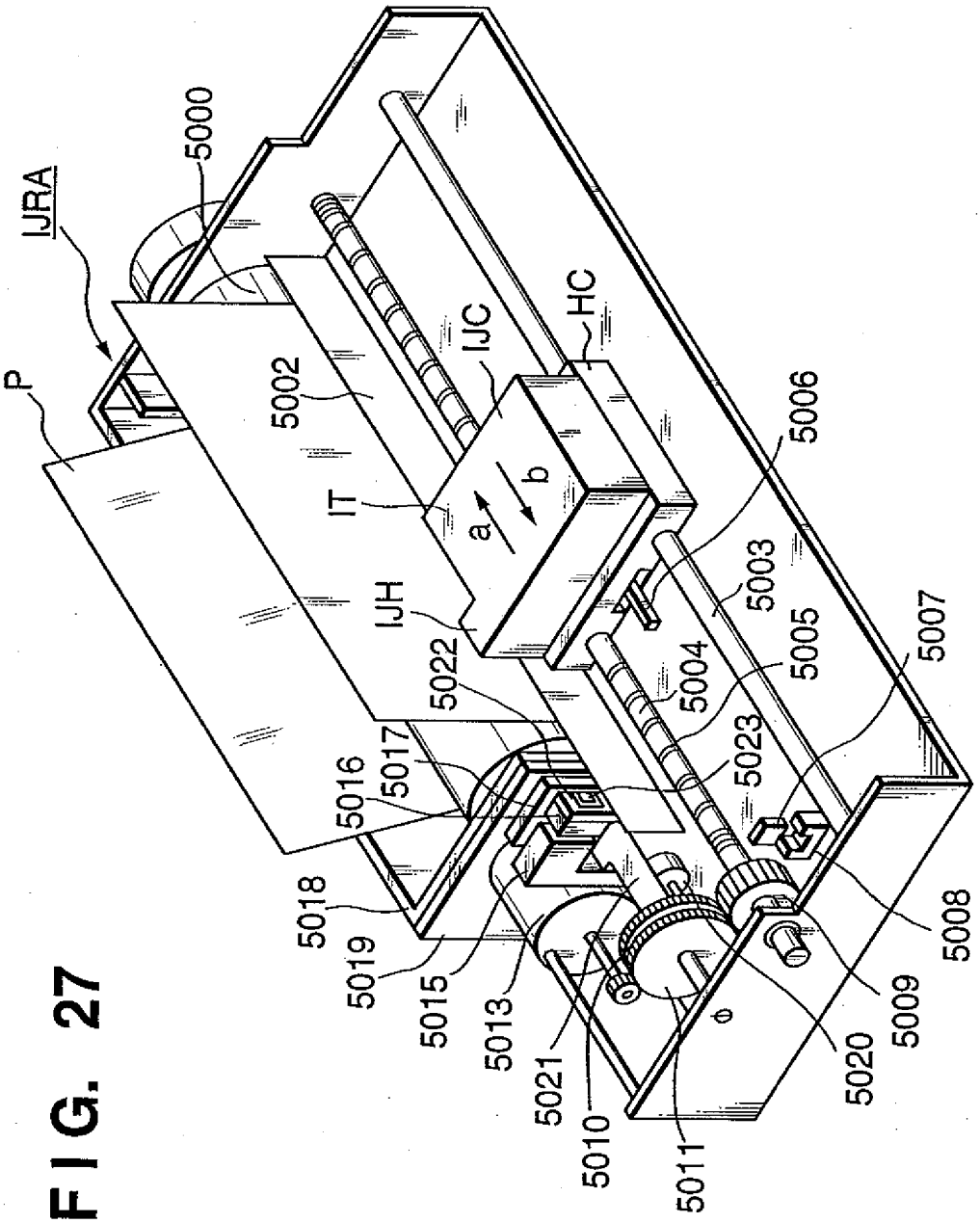

2200
2205
2204
2203
2201
2207
1/2 V
V
2209
2210
2208
2206
1210-1
1210-2
1210-3
2211
2216
2215
2214
2222
2218
2212
2202
2213
2221
Bk
2219
2217
Y
M
2226
2225
C
2220
2223
2224

FIG. 27


IJRA
5000
P
5002
IJC
HC
IT
a
b
5006
IJH
5003
5022
5004
5005
5007
5017
5016
5023
5018
5019
5015
5013
5021
5010
5011
5020
5009
5008

[TYPE OF DOCUMENT] ABSTRACT

[SUMMARY]

[SUBJECT] Counting of data, namely calculation of collecting rate for respective users or kinds in a collecting center which collects various kinds of consumption articles is extremely complex and troublesome.

[MEANS OF ACHIEVING SUBJECT] A client accesses a collecting system 5 (S11) and requests collecting of the consumption articles (S13). The collecting system 5 stores collecting data of the kind and quantity of the consumption articles to be collected associated with users in a memory (S14) and transmits a collecting code corresponding to the collecting data to the client 6 (S15). The client 6 generates a collecting slip including the collecting code received (S16) and dispatches the consumption articles with the collecting slip attached to the collecting center 4 (S17). The collecting center 4 reads out the collecting code recorded on the collecting slip attached to the consumption articles dispatched (S18) and calculates the collecting rate for respective users and consumption articles based on the collecting code (S20).

[SELECTECD DRAWING] Fig. 3